April 18, 2002

Mr. William J. Rumpke
Rumpke of Indiana, LLC
10795 Hughes Road
Cincinnati, OH 45251-4598

Re: 055-15317
First Significant Revision to
MSOP 055-11614-00036

Dear Mr. Rumpke:

Rumpke of Indiana, LLC - Worthington Sanitary Landfill was issued a permit on July 5, 2000 for a municipal solid waste sanitary landfill. A letter requesting changes to this permit was received on December 20, 2001. Pursuant to the provisions of 326 IAC 2-6.1-6 a significant permit revision to this permit is hereby approved as described in the attached Technical Support Document.

The modification consists of increasing the capacity of the landfill from 2.358 million megagrams (Mg) to 6.337 million Mg. This increase in capacity now makes this source subject to the requirements of the New Source Performance Standard (NSPS), 40 CFR 60.750 through 60.759, Subpart WWW.

This modification also includes increases to the solid waste dumping operations and landfill roadway use as well as the addition of a landfill gas flare to reflect the expansion in landfill capacity and the applicability of the NSPS. The source is also installing a new waste solidification process and a new 772,000 gallon capacity Leachate Storage Basin #2.

Because this source is now subject to the NSPS, 40 CFR 60.750 through 60.759, Subpart WWW, this source will be subject to the requirements of 326 IAC 2-7 (Part 70 Permit Program) upon issuance of this permit. The source is required to submit a Part 70 permit application within one (1) year of issuance of this permit.

The following construction conditions are applicable to the proposed project:

1. General Construction Conditions
The data and information supplied with the application shall be considered part of this source modification approval. Prior to any proposed change in construction which may affect the potential to emit (PTE) of the proposed project, the change must be approved by the Office of Air Quality (OAQ).

2. This approval to construct does not relieve the permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

3. Effective Date of the Permit
Pursuant to IC 13-15-5-3, this approval becomes effective upon its issuance.

4. Pursuant to 326 IAC 2-1.1-9 (Revocation), the Commissioner may revoke this approval if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.

5. All requirements and conditions of this construction approval shall remain in effect unless modified in a manner consistent with procedures established pursuant to 326 IAC 2.

Pursuant to 326 IAC 2-6.1-6, this permit shall be revised by incorporating the significant permit revision into the permit. All other conditions of the permit shall remain unchanged and in effect. Please attach a copy of this modification and replace the original permit with the following revised permit.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter, please contact Trish Earls, c/o OAQ, 100 North Senate Avenue, P.O. Box 6015, Indianapolis, Indiana, 46206-6015, or call at (973) 575-2555, ext. 3219 or dial (800) 451-6027, press 0 and ask for extension 3-6878.

Sincerely,

Original Signed by Paul Dubenetzky
Paul Dubenetzky, Chief
Permits Branch
Office of Air Quality

Attachments
TE/EVP
cc: File - Greene County
U.S. EPA, Region V
Greene County Health Department
Air Compliance Section Inspector - Vaughn Ison
Compliance Data Section - Karen Nowak
Administrative and Development - Janet Mobley
Technical Support and Modeling - Michelle Boner

NEW SOURCE CONSTRUCTION PERMIT
and MINOR SOURCE OPERATING PERMIT
OFFICE OF AIR QUALITY

Rumpke of Indiana, LLC - Worthington Sanitary Landfill
County Road 500
Worthington, Indiana 46176

(herein known as the Permittee) is hereby authorized to construct and operate subject to the conditions contained herein, the emission units described in Section A (Source Summary) of this permit.

This permit is issued to the above mentioned company under the provisions of 326 IAC 2-1.1, 326 IAC 2-5.1 if new source, 326 IAC 2-6.1 and 40 CFR 52.780, with conditions listed on the attached pages.

Operation Permit No.: MSOP 055-11614-00036	
Issued by: Paul Dubenetzky, Branch Chief Office of Air Quality	Issuance Date: July 5, 2000

First Significant Permit Revision 055-15317-00036	Pages Affected: 2 - 5, Section D.1
Issued by: Original Signed by Paul Dubenetzky Paul Dubenetzky, Branch Chief Office of Air Quality	Issuance Date: April 18, 2002

TABLE OF CONTENTS

SECTION A SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the source contained in conditions A.1 through A.3 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1 General Information [326 IAC 2-5.1-3(c)] [326 IAC 2-6.1-4(a)]

The Permittee owns and operates a stationary municipal solid waste sanitary landfill.

Authorized Individual:	William J. Rumpke
Source Address:	County Road 500, Worthington, Indiana 46176
Mailing Address:	10795 Hughes Road, Cincinnati, Ohio 45251-4598
Phone Number:	513-851-0122, ext. 3162
SIC Code:	4953
County Location:	Greene
County Status:	Attainment for all criteria pollutants
Source Status:	Part 70 source operating under a Minor Source Operating Permit Minor Source, under PSD Rules

A.2 Emissions Units and Pollution Control Equipment Summary

This stationary source is approved to construct and operate the following emissions units and pollution control devices:

(a) one (1) municipal solid waste sanitary landfill generating landfill gas, with a maximum design capacity of 6,337,349 megagrams (Mg). A landfill gas collection system and flare for control of landfill gas emissions shall be installed as required under the requirements of 40 CFR 60.750 through 60.759, Subpart WWW.
(b) solid waste dumping operations;
(c) unpaved landfill roadways;
(d) one (1) 440,000 gallon leachate surface impoundment for leachate storage, with potential VOC emissions of less than 5 tons per year;
(e) one (1) diesel on-road 15,000 gallon storage tank;
(f) one (1) 10,000 gallon diesel off-road storage tank, dispensing less than 3,500 gallons of diesel per day;
(g) one (1) 275 gallon garage furnace fuel oil storage tank, dispensing less than 3,500 gallons of fuel per day;
(h) one (1) 550 gallon hydraulic oil storage tank;
(i) one (1) 550 gallon motor oil storage tank;
(j) one (1) 1,000 gallon waste motor oil storage tank;
(k) one (1) 500 gallon waste motor oil furnace supply tank;
(l) one (1) 275 gallon transmission oil storage tank;
(m) three (3) propane storage tanks with maximum storage capacities of 300, 400, and 1,000 gallons, respectively;
(n) one (1) garage propane furnace, rated at 0.15 million British thermal units (MMBtu) per hour;
(o) one (1) office propane furnace, rated at 0.09 MMBtu per hour;
(p) one (1) garage fuel oil-fired furnace, rated at 0.134 MMBtu per hour;
(q) one (1) garage waste oil-fired furnace, rated at 0.196 MMBtu per hour;
(r) one (1) diesel-fired pressure washer, rated at 385 Btu per minute;
(s) one (1) gasoline-fired water pump, rated at 5 HP;
(t) one (1) diesel-fired water pump, rated at 50 HP;
(u) one (1) diesel-fired light plant, rated at 30 HP;

(v) maintenance cold cleaner degreasers, with total annual solvent usage of less than 145 gallons;
(w) maintenance drilling;
(x) maintenance light welding;
(y) one (1) non-hazardous industrial and commercial liquid waste solidification process, located in a portable solidification basin (roll-off box) for mixing liquid waste, solid waste, and mixing agents, with a maximum throughput of 1,667 gallons per hour of liquid waste, 65 tons per hour of solidified waste, and 50 tons per hour of mixing agent;
(z) mixing agent and solidified waste material handling operations; and
(aa) one (1) 772,000 gallon capacity leachate storage basin, identified as Leachate Storage Basin #2.

SECTION B GENERAL CONDITIONS

THIS SECTION OF THE PERMIT IS BEING ISSUED UNDER THE PROVISIONS OF 326 IAC 2-1.1 AND 40 CFR 52.780, WITH CONDITIONS LISTED BELOW.

B.1 Permit No Defense [IC 13]

This permit to operate does not relieve the Permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

B.2 Definitions

Terms in this permit shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, any applicable definitions found in IC 13-11, 326 IAC 1-2, and 326 IAC 2-1.1-1 shall prevail.

B.3 Effective Date of the Permit [IC13-15-5-3]

Pursuant to IC 13-15-5-3, this permit becomes effective upon its issuance.

B.4 Modification to Permit [326 IAC 2]

All requirements and conditions of this operating permit shall remain in effect unless modified in a manner consistent with procedures established for modifications of operating permits pursuant to 326 IAC 2 (Permit Review Rules).

B.5 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source is required to apply for a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:

(a) It is a major source, as defined in 326 IAC 2-7-1(22); and

(b) It is a source in a source category designated by the United States Environmental Protection Agency (U.S. EPA) under 40 CFR 70.3 (Part 70 - Applicability).

Pursuant to 326 IAC 2-7-4, the source shall submit a Part 70 permit application to the OAQ within twelve (12) months after the source becomes subject to the Part 70 permit program. The source will be subject to the Part 70 permit program when operation of the modified landfill and new equipment listed in Section D.1 begins.

SECTION C SOURCE OPERATION CONDITIONS

Entire Source

C.1 PSD Minor Source Status [326 IAC 2-2] [40 CFR 52.21]

(a) The total source potential to emit of all non-fugitive criteria pollutants is less than 250 tons per year. Therefore the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration) and 40 CFR 52.21 will not apply.

(b) Any change or modification which may increase potential to emit of non-fugitive pollutants to 250 tons per year from this source, shall cause this source to be considered a major source under PSD, 326 IAC 2-2 and 40 CFR 52.21, and shall require approval from IDEM, OAQ prior to making the change.

C.2 Preventive Maintenance Plan [326 IAC 1-6-3]

(a) If required by specific condition(s) in Section D of this permit, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMP) after issuance of this permit, including the following information on each emissions unit:

(1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;

(2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions;

(3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

(b) The Permittee shall implement the Preventive Maintenance Plans as necessary to ensure that failure to implement the Preventive Maintenance Plan does not cause or contribute to a violation of any limitation on emissions or potential to emit.

(c) PMP's shall be submitted to IDEM, OAQ, upon request and shall be subject to review and approval by IDEM, OAQ. IDEM, OAQ, may require the Permittee to revise its Preventive Maintenance Plan whenever lack of proper maintenance causes or contributes to any violation.

C.3 Permit Revision [326 IAC 2-5.1-3(e)(3)] [326 IAC 2-6.1-6]

(a) The Permittee must comply with the requirements of 326 IAC 2-6.1-6 whenever the Permittee seeks to amend or modify this permit.

(b) Any application requesting an amendment or modification of this permit shall be submitted to:

Indiana Department of Environmental Management
Permits Branch, Office of Air Quality
100 North Senate Avenue, P.O. Box 6015
Indianapolis, Indiana 46206-6015

Any such application should be certified by the "authorized individual" as defined by 326 IAC 2-1.1-1.

(c) The Permittee shall notify the OAQ within thirty (30) calendar days of implementing a notice-only change. [326 IAC 2-6.1-6(d)]

C.4 Inspection and Entry [326 IAC 2-7-6(2)]

Upon presentation of proper identification cards, credentials, and other documents as may be required by law, and subject to the Permittee's right under all applicable laws and regulations to assert that the information collected by the agency is confidential and entitled to be treated as such, the Permittee shall allow IDEM, OAQ, U.S. EPA, or an authorized representative to perform the following:

(a) Enter upon the Permittee's premises where a permitted source is located, or emissions related activity is conducted, or where records must be kept under the conditions of this permit;

(b) Have access to and copy, at reasonable times, any records that must be kept under this title or the conditions of this permit or any operating permit revisions;

(c) Inspect, at reasonable times, any processes, emissions units (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit or any operating permit revisions;

(d) Sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with this permit or applicable requirements; and

(e) Utilize any photographic, recording, testing, monitoring, or other equipment for the purpose of assuring compliance with this permit or applicable requirements.

C.5 Transfer of Ownership or Operation [326 IAC 2-6.1-6(d)(3)]

Pursuant to [326 IAC 2-6.1-6(d)(3)] :

(a) In the event that ownership of this source is changed, the Permittee shall notify IDEM, OAQ, Permits Branch, within thirty (30) days of the change.

(b) The written notification shall be sufficient to transfer the permit to the new owner by an notice-only change pursuant to 326 IAC 2-6.1-6(d)(3).

(c) IDEM, OAQ, shall issue a revised permit.

The notification which shall be submitted by the Permittee does require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1.

C.6 Permit Revocation [326 IAC 2-1.1-9]

Pursuant to 326 IAC 2-1.1-9 (Revocation), this permit to construct and operate may be revoked for any of the following causes:

(a) Violation of any conditions of this permit.

(b) Failure to disclose all the relevant facts, or misrepresentation in obtaining this permit.

(c) Changes in regulatory requirements that mandate either a temporary or permanent reduction of discharge of contaminants. However, the amendment of appropriate sections of this permit shall not require revocation of this permit.

(d) Noncompliance with orders issued pursuant to 326 IAC 1-5 (Episode Alert Levels) to reduce emissions during an air pollution episode.

(e) For any cause which establishes in the judgment of IDEM, the fact that continuance of this permit is not consistent with purposes of this article.

C.7 Opacity [326 IAC 5-1]

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

(a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor in a six (6) hour period.

C.8 Fugitive Dust Emissions [326 IAC 6-4]

The Permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions). 326 IAC 6-4-2(4) is not federally enforceable.

Testing Requirements

C.9 Performance Testing [326 IAC 3-6][326 IAC 2-1.1-11]

(a) Compliance testing on new emissions units shall be conducted within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up, if specified in Section D of this approval. All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this permit, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.

A test protocol, except as provided elsewhere in this permit, shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

no later than thirty-five (35) days prior to the intended test date. The Permittee shall submit a notice of the actual test date to the above address so that it is received at least two weeks prior to the test date.

(b) All test reports must be received by IDEM, OAQ within forty-five (45) days after the completion of the testing. An extension may be granted by the IDEM, OAQ, if the source submits to IDEM, OAQ, a reasonable written explanation within five (5) days prior to the end of the initial forty-five (45) day period.

The documentation submitted by the Permittee does not require certification by the "authorized individual" as defined by 326 IAC 2-1.1-1.

Compliance Monitoring Requirements

C.10 Compliance Monitoring [326 IAC 2-1.1-11]

Compliance with applicable requirements shall be documented as required by this permit. The Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment. All monitoring and record keeping requirements not already legally required shall be implemented when operation begins.

C.11 Monitoring Methods [326 IAC 3]

Any monitoring or testing required by Section D of this permit shall be performed according to the provisions of 326 IAC 3, 40 CFR 60, Appendix A, or other approved methods as specified in this permit.

Record Keeping and Reporting Requirements

C.12 Malfunctions Report [326 IAC 1-6-2]

Pursuant to 326 IAC 1-6-2 (Records; Notice of Malfunction):

(a) A record of all malfunctions, including startups or shutdowns of any facility or emission control equipment, which result in violations of applicable air pollution control regulations or applicable emission limitations shall be kept and retained for a period of three (3) years and shall be made available to the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ) or appointed representative upon request.

(b) When a malfunction of any facility or emission control equipment occurs which lasts more than one (1) hour, said condition shall be reported to OAQ, using the Malfunction Report Forms (2 pages). Notification shall be made by telephone or facsimile, as soon as practicable, but in no event later than four (4) daytime business hours after the beginning of said occurrence.

(c) Failure to report a malfunction of any emission control equipment shall constitute a violation of 326 IAC 1-6, and any other applicable rules. Information of the scope and expected duration of the malfunction shall be provided, including the items specified in 326 IAC 1-6-2(a)(1) through (6).

(d) Malfunction is defined as any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. [326 IAC 1-2-39]

C.13 Monitoring Data Availability [326 IAC 2-6.1-2] [IC 13-14-1-13]

(a) With the exception of performance tests conducted in accordance with Section C-Performance Testing, all observations, sampling, maintenance procedures, and record keeping, required as a condition of this permit shall be performed at all times the equipment is operating at normal representative conditions.

(b) As an alternative to the observations, sampling, maintenance procedures, and record keeping of subsection (a) above, when the equipment listed in Section D of this permit is not operating, the Permittee shall either record the fact that the equipment is shut down or perform the observations, sampling, maintenance procedures, and record keeping that would otherwise be required by this permit.

(c) If the equipment is operating but abnormal conditions prevail, additional observations and sampling should be taken with a record made of the nature of the abnormality.

(d) If for reasons beyond its control, the operator fails to make required observations, sampling, maintenance procedures, or record keeping, reasons for this must be recorded.

(e) At its discretion, IDEM may excuse such failure providing adequate justification is documented and such failures do not exceed five percent (5%) of the operating time in any quarter.

(f) Temporary, unscheduled unavailability of staff qualified to perform the required observations, sampling, maintenance procedures, or record keeping shall be considered a valid reason for failure to perform the requirements stated in (a) above.

C.14 General Record Keeping Requirements [326 IAC 2-6.1-2]

(a) Records of all required monitoring data and support information shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. These records shall be kept at the source location for a minimum of three (3) years and available upon the request of an IDEM, OAQ, representative. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a written request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.

(b) Records of required monitoring information shall include, where applicable:

(1) The date, place, and time of sampling or measurements;

(2) The dates analyses were performed;

(3) The company or entity performing the analyses;

(4) The analytic techniques or methods used;

(5) The results of such analyses; and

(6) The operating conditions existing at the time of sampling or measurement.

(c) Support information shall include, where applicable:

(1) Copies of all reports required by this permit;

(2) All original strip chart recordings for continuous monitoring instrumentation;

(3) All calibration and maintenance records;

(4) Records of preventive maintenance shall be sufficient to demonstrate that failure to implement the Preventive Maintenance Plan did not cause or contribute to a violation of any limitation on emissions or potential to emit. To be relied upon subsequent to any such violation, these records may include, but are not limited to: work orders, parts inventories, and operator's standard operating procedures.

(d) All record keeping requirements not already legally required shall be implemented when operation begins.

C.15 General Reporting Requirements [326 IAC 2-1.1-11] [326 IAC 2-6.1-2] [IC 13-14-1-13]

(a) Reports required by conditions in Section D of this permit shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

(b) Unless otherwise specified in this permit, any notice, report, or other submission required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ, on or before the date it is due.

(c) Unless otherwise specified in this permit, any semi-annual report shall be submitted within thirty (30) days of the end of the reporting period. The report does not require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(d) All instances of deviations must be clearly identified in such reports. A reportable deviation is an exceedance of a permit limitation or a failure to comply with a requirement of the permit or a rule. It does not include:

(1) An excursion from compliance monitoring parameters as identified in Section D of this permit unless tied to an applicable rule or limit; or

(2) A malfunction as described in 326 IAC 1-6-2; or

(3) Failure to implement elements of the Preventive Maintenance Plan unless lack of maintenance has caused or contributed to a deviation.

(4) Failure to make or record information required by the compliance monitoring provisions of Section D unless such failure exceeds 5% of the required data in any calendar quarter.

A Permittee's failure to take the appropriate response step when an excursion of a compliance monitoring parameter has occurred or failure to monitor or record the required compliance monitoring is a deviation.

(e) Any corrective actions or response steps taken as a result of each deviation must be clearly identified in such reports.

(f) The first report shall cover the period commencing on the date of issuance of this permit and ending on the last day of the reporting period.

C.16 Annual Notification [326 IAC 2-6.1-5(a)(5)]

(a) Annual notification shall be submitted to the Office of Air Quality stating whether or not the source is in operation and in compliance with the terms and conditions contained in this permit.

(b) Noncompliance with any condition must be specifically identified. If there are any permit conditions or requirements for which the source is not in compliance at any time during the year, the Permittee must provide a narrative description of how the source did or will achieve compliance and the date compliance was, or will be, achieved. The notification must be signed by an authorized individual.

(c) The annual notice shall cover the time period from January 1 to December 31 of the previous year, and shall be submitted in the format attached no later than March 1 of each year to:

Compliance Data Section, Office of Air Quality
Indiana Department of Environmental Management
100 North Senate Avenue, P.O. Box 6015
Indianapolis, IN 46206-6015

(d) The notification shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ, on or before the date it is due.

SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description
(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

(a) one (1) municipal solid waste sanitary landfill generating landfill gas, with a maximum design capacity of 6,337,349 megagrams (Mg). A landfill gas collection system and flare for control of landfill gas emissions shall be installed as required under the requirements of 40 CFR 60.750 through 60.759, Subpart WWW.
(b) solid waste dumping operations;
(c) unpaved landfill roadways;
(y) one (1) non-hazardous industrial and commercial liquid waste solidification process, located in a portable solidification basin (roll-off box) for mixing liquid waste, solid waste, and mixing agents, with a maximum throughput of 1,667 gallons per hour of liquid waste, 65 tons per hour of solidified waste, and 50 tons per hour of mixing agent; and
(z) mixing agent and solidified waste material handling operations.

Emission Limitations and Standards

D.1.1 General Provisions Relating to NSPS [326 IAC 12-1][40 CFR Part 60, Subpart A]

The provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated by reference in 326 IAC 12-1, apply to the facility described in this section except when otherwise specified in 40 CFR Part 60, Subpart WWW.

D.1.2 Municipal Solid Waste Landfills Not Located in Clark, Floyd, Lake and Porter Counties [326 IAC 8-8.1]

The municipal solid waste landfill is subject to 326 IAC 8-8.1, which incorporates by reference the following provisions of 40 CFR 60, Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills: 40 CFR 60.751, 60.752, 60.753, 60.754, 60.755, 60.756, 60.757, 60.758 and 60.759.

D.1.3 Municipal Solid Waste Landfill NSPS [326 IAC 12] [40 CFR 60.752, Subpart WWW]

(a) The municipal solid waste landfill has a design capacity greater than 2.5 million megagrams (Mg) and shall either comply with 40 CFR 60.752 (b)(2) or calculate the non methane organic compound (NMOC) emission rate for the landfill using the procedures specified in 40 CFR 60.754.

(b) The source is subject to 326 IAC 2-7 (Part 70 Permit Program) and shall apply for a Part 70 operating permit within twelve (12) months after this source becomes subject to Title V.

D.1.4 Operational Standards for Collection and Control Systems [40 CFR 60.753]

In order to comply with 40 CFR 60.752 (b)(2)(ii), when the calculated NMOC emission rate equals or exceeds 50 megagrams per year, the Permittee shall:

(a) Operate the collection system such that gas is collected from each area, cell, or group of cells in the municipal solid waste landfill in which solid waste has been in place for five years if active or 2 years or more if closed or at final grade.

(b) Operate the collection system with negative pressure at each wellhead except under the following conditions:

(1) Fire or increased well temperature. The Permittee shall record instances when positive pressure occurs in efforts to avoid a fire. These records shall be submitted with the annual reports as provided in 40 CFR 60.757(f)(1).

(2) Use of a geomembrane or synthetic cover. The Permittee shall develop acceptable pressure limits in the design plan.

(3) A decommissioned well. A well may experience a static positive pressure after shut down to accommodate for declining flows. All design changes shall be approved by the Office of Air Quality (OAQ).

(c) Operate each interior wellhead in the collection system with a landfill gas temperature less than 55EC and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent. The Permittee may establish a higher operating temperature, nitrogen, or oxygen value at a particular well. A higher operating value demonstration shall show supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

(1) The nitrogen level shall be determined using Method 3C, unless an alternative method is established as allowed by 40 CFR 60.752 (b)(2)(i).

(2) Unless an alternative test method is established as allowed by 40 CFR 60.752 (b)(2)(i), the oxygen shall be determined by an oxygen meter using Method 3A except that; the span shall be set so that the regulatory limit is between 20 and 50 percent of the span; a data recorder is not required; only two calibration gases are required, a zero and span, and ambient air may be used as the span; a calibration error check is not required; the allowable sample bias, zero drift, and calibration drift are ±10 percent.

(d) Operate the collection system so that the methane concentration is less than 500 parts per million above background at the surface of the landfill. To determine if this level is exceeded, the Permittee shall conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at 30 meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover. The Permittee may establish an alternative traversing pattern that ensures equivalent coverage. A surface monitoring design plan shall be developed that includes a topographical map with the monitoring route and the rationale for any site-specific deviations from the 30 meter intervals. Areas with steep slopes or other dangerous areas may be excluded from the surface testing.

(e) Operate the system such that all collected gases are vented to a control system designed and operated in compliance with 40 CFR 60.752(b)(2)(iii). In the event the collection or control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within one hour.

(f) Operate the control system at all times when the collected gas is routed to the system.

(g) If monitoring demonstrates that the operational requirements in 40 CFR 60.753(b), (c), or (d) are not met, corrective action shall be taken as specified in 40 CFR 60.755(a)(3) through (5) or 40 CFR 60.755(c). If corrective actions are taken as specified in 40 CFR 60.755, the monitored exceedance is not a violation of the operational requirements in 40 CFR 60.753.

D.1.5 Particulate Matter (PM) [326 IAC 6-3-2(c)]

(a) The particulate matter (PM) emissions from the solid waste dumping operations shall not exceed 52.62 pounds per hour, when operating at a maximum process weight rate of 228,310.5 pounds per hour.

Interpolation and extrapolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 55.0 P^{0.11} - 40$ where E = rate of emission in pounds per hour; and P = process weight rate in tons per hour

(b) The particulate matter (PM) emissions from the mixing agent loading and unloading operations shall not exceed 44.58 pounds per hour, when operating at a maximum process weight rate of 100,000 pounds per hour.

Interpolation and extrapolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 55.0 P^{0.11} - 40$ where E = rate of emission in pounds per hour; and P = process weight rate in tons per hour

(c) The particulate matter (PM) emissions from the solidified waste loading and unloading operations shall not exceed 47.05 pounds per hour, when each is operating at a maximum process weight rate of 130,000 pounds per hour.

Interpolation and extrapolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 55.0 P^{0.11} - 40$ where E = rate of emission in pounds per hour; and P = process weight rate in tons per hour

D.1.6 Volatile Organic Compounds (VOC) [326 IAC 8-1-6]

The throughput of liquid waste to the solidification process shall not exceed 6,240,000 gallons per twelve (12) consecutive month period, rolled on a monthly basis. The concentration of any single VOC shall not exceed 200 milligrams (mg) per liter. This will limit potential VOC emissions from the waste solidification process to less than 25 tons per year. Therefore, the requirements of 326 IAC 8-1-6 (New Facilities, General Reduction Requirements) do not apply.

D.1.7 Preventive Maintenance Plan [326 IAC 1-6-3]

A Preventive Maintenance Plan, in accordance with Section C - Preventive Maintenance Plan, of this permit, is required for the sanitary landfill and any control devices when the calculated NMOC emissions are greater than 50 megagrams per year.

Compliance Determination Requirements

D.1.8 Testing Requirements [326 IAC 2-7-6(1),(6)] [40CFR 60.754]

(a) When the calculated NMOC emissions are greater than 50 megagrams per year, pursuant to 40 CFR 60.754(b):

After installation of a collection and control system in compliance with 40 CFR 60.755, the Permittee shall calculate the non methane organic compound (NMOC) emission rate for purposes of determining when the system can be removed using the following equation:

$M_{NMOC} = 1.89 \times 10^{-3} Q_{LFG} C_{NMOC}$
where,
M_{NMOC} = mass emission rate of NMOC, megagrams per year
Q_{LFG} = flow rate of landfill gas, cubic meters per minute
C_{NMOC} = NMOC concentration, parts per million by volume as hexane

(1) The flow rate of landfill gas, Q_{LFG}, shall be determined by measuring the total landfill gas flow rate at the common header pipe that leads to the control device using a gas flow measuring device calibrated according to the provisions of section 4 of Method 2E of appendix A of 40CFR 60.

(2) The average NMOC concentration, C_{NMOC}, shall be determined by collecting and analyzing landfill gas sampled from the common header pipe before the gas moving or condensate removal equipment using the procedures in Method 25C or Method 18 of appendix A of 40 CFR 60. If using Method 18 of appendix A of 40 CFR 60, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42). The sample location on the common header pipe shall be before any condensate removal or other gas refining units. The Permittee shall divide the NMOC concentration from Method 25C of appendix A of 40CFR 60 by six to convert from C_{NMOC} as carbon to C_{NMOC} as hexane.

(3) The Permittee may use another method to determine landfill gas flow rate and NMOC concentration if the method has been approved by the Office of Air Quality.

(b) Pursuant to 40CFR 60.754(d):

For the performance test required in 40 CFR 60.752(b)(2)(iii)(B), Method 25, 25C, or Method 18 of Appendix A of 40 CFR 60 must be used to determine compliance with the 98 weight-percent efficiency or the 20 ppmv outlet concentration level, unless another method to demonstrate compliance has been approved by the Office of Air Quality (OAQ) as provided by 40 CFR 60.752(b)(2)(i)(B). Method 3 or 3A shall be used to determine oxygen for correcting the NMOC concentration as hexane to 3 percent. In cases where the outlet concentration is less than 50 ppm NMOC as carbon (8 ppm NMOC as hexane), Method 25A should be used in place of Method 25. If using Method 18 of appendix A of this part, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42). The following equation shall be used to calculate efficiency:

Control Efficiency = $(NMOC_{in} - NMOC_{out})/ (NMOC_{in})$
where,
$NMOC_{in}$ = mass of NMOC entering the control device
$NMOC_{out}$ = mass of NMOC exiting control device

D.1.9 Landfill Gas

The landfill gas collection system and flare for landfill gas collection and control shall be in operation at all times when the collected gas is routed to the system and the content of the landfill gas is greater than 50 megagrams of NMOC per year.

Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.1.10 Monitoring [40 CFR 60.756]

Except as provided in 40 CFR 60.752(b)(2)(i)(B), when the calculated NMOC emission rate equals or exceeds 50 megagrams per year,

(a) The Permittee seeking to comply with 40 CFR 60.752(b)(2)(ii)(A) for an active gas collection shall install a sampling port and a thermometer, other temperature measuring device, or an access port for temperature measurements at each wellhead and:

(1) Measure the gauge pressure in the gas collection header on a monthly basis as provided in 40 CFR 60.755(a)(3);

(2) Monitor nitrogen or oxygen concentration in the landfill gas on a monthly basis as provided in 40 CFR 60.755(a)(5); and

(3) Monitor temperature of the landfill gas on a monthly basis as provided in 40 CFR 60.755(a)(5).

(b) The Permittee seeking to comply with 40 CFR 60.752(b)(2)(iii) using an enclosed combustor shall calibrate, maintain, and operate according to the manufacturer's specifications, the following equipment:

(1) A temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of ±1 percent of the temperature being measured expressed in degrees Celsius of ±0.5 EC, whichever is greater. A temperature monitoring device is not required for boilers or process heaters with design heat input capacity greater than 44 megawatts.

(2) A device that records flow to or bypass of the control device. The Permittee shall either; install, calibrate, and maintain a gas flow rate measuring device that shall record the flow to the control device at least every fifteen (15) minutes; or secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line.

(c) The Permittee seeking to comply with 40 CFR 60.752(b)(2)(iii) using an open flare shall install, calibrate, maintain, and operate according to the manufacturer's specifications the following equipment:

(1) Heat sensing device, such as an ultraviolet beam sensor or thermocouple, at the pilot light or the flame itself to indicate the continuous presence of a flame

(2) A device that records flow to or bypass of the flare.

The Permittee shall either install, calibrate, and maintain a gas flow rate measuring device that shall record the flow to the control device at least every fifteen minutes; or secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure of the seal or closure mechanism shall be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line.

(d) The Permittee seeking to comply with 40 CFR 60.752(b)(2)(iii) using a device other than an open flare or an enclosed combustor shall provide information satisfactory to the Office of Air Quality (OAQ) as provided in 40 CFR 60.752(b)(2)(i)(B) describing the operation of the control device, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The Office of Air Quality (OAQ) shall review the information and either approve it, or request that additional information be submitted. The Office of Air Quality (OAQ) may specify additional monitoring procedures.

(e) The Permittee seeking to install a collection system that does not meet the specifications in 40 CFR 60.759 or seeking to monitor alternative parameters to those required by 40 CFR 60.753 through 40 CFR 60.756 shall provide information satisfactory to the Office of Air Quality (OAQ) as provided in 40 CFR 60.752(b)(2)(i)(B) and (C) describing the design and operation of the collection system, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The Office of Air Quality (OAQ) may specify additional appropriate monitoring procedures.

(f) The Permittee seeking to demonstrate compliance with 40 CFR 60.755(c), shall monitor surface concentrations of methane according to the instrument specifications and procedures provided in 40 CFR 60.755(d). Any closed landfill that has no monitored exceedances of the operational standard in three consecutive quarterly monitoring periods may skip to annual monitoring. Any methane reading of 500 ppm or more above background detected during the annual monitoring returns the frequency for that landfill to quarterly monitoring.

D.1.11 Compliance Provisions [40 CFR 60.755]

(a) Except as provided in 40 CFR 60.752(b)(2)(i)(B), when the calculated NMOC emission rate equals or exceeds 50 megagrams per year, the specified methods below shall be used to determine whether the gas collection system is in compliance with 40 CFR 60.752(b)(2)(ii).

(1) For the purpose of calculating the maximum expected gas generation flow rate from the landfill to determine compliance with 40 CFR 60.752(b)(2)(ii)(A)(1), one of the following equations shall be used. The k and L_o kinetic factors should be those published in the most recent Compilation of Air Pollution Emission Factors (AP-42) or other site-specific values demonstrated to be appropriate and approved by the Office of Air Quality (OAQ). If k has been determine as specified in 40 CFR 60.754(a)(4), the value of k determined from the test shall be used. A value of no more than 15 years shall be used for the intended use period of the gas mover equipment. The active life of the landfill is the age of the landfill plus the estimated number of years until closure.

For sites with unknown year-to-year solid waste acceptance rate:

$Q_m = 2L_o R (e^{-kc} - e^{-kt})$
where,
Q_m = maximum expected gas generation flow rate, cubic meters per year
L_o = methane generation potential, cubic meters per megagram solid waste
R = average annual acceptance rate, megagrams per year
k = methane generation rate constant, $year^{-1}$
t = age of the landfill at equipment installation plus the time the owner or operator intends to use the gas mover equipment or active life of the landfill, whichever is less. If the equipment is installed after closure, t is the age of the landfill at installation, years.

c = time since closure, years (for an active landfill c = 0 and $e^{-kc} = 1$)

For sites with known year-to-year solid waste acceptance rate:

$$Q_M = \sum_{i=1}^{n} 2\,k\,L_O\,M_i\,(e^{-kt_i})$$

where,
Q_M = maximum expected gas generation flow rate, cubic meters per year
k = methane generation rate constant, year $^{-1}$
L_o = methane generation potential, cubic meters per megagram solid waste
M_i = mass of solid waste in the i^{th} section, megagrams
t_i = age of the i^{th} section, years

If a collection and control system has been installed, actual flow data may be used to project the maximum expected gas generation flow rate instead of, or in conjunction with, the equations in 40 CFR 60.755(a)(1)(i) and (ii). If the landfill is still accepting waste, the actual measured flow data will not equal the maximum expected gas generation rate, so calculations using the equations in 40 CFR 60.755(a)(1)(i) or (ii) or other methods shall be used to predict the maximum expected gas generation rate over the intended period of use of the gas control system equipment.

(2) For the purposes of determining sufficient density of gas collector for compliance with 40 CFR 60.752 (b)(2)(ii)(A)(2), the Permittee shall design a system of vertical wells, horizontal collectors, or other collection devices, satisfactory to the Office of Air Quality (OAQ), capable of controlling and extracting gas from all portions of the landfill sufficient to meet all operational and performance standards.

(3) For the purpose of demonstrating whether the gas collection system flow rate is sufficient to determine compliance with 40 CFR 60.752(b)(2)(ii)(A)(3), the Permittee shall measure gauge pressure in the gas collection header at each individual well, monthly. If a positive pressure exists, action shall be initiated to correct the exceedance within five (5) calendar days, except for the three conditions allowed under 40 CFR 60.753(b). If negative pressure cannot be achieved without excess air infiltration within fifteen (15) calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial measurement of positive pressure. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the Office of Air Quality for approval.

(4) The Permittee is not required to expand the system as required in 40 CFR 60.755(a)(3) during the first 180 days after gas collection system start-up.

(5) For the purpose of identifying whether excess air infiltration into the landfill is occurring, the Permittee shall monitor each well monthly for temperature and nitrogen or oxygen as provided in 40 CFR 60.753(c). If a well exceeds one of these operating parameters, action shall be initiated to correct the exceedance within five (5) calendar days. If correction of the exceedance cannot be achieved within fifteen (15) calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial exceedance. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the Office of Air Quality for approval.

(6) If the Permittee seeks to demonstrate compliance with 40 CFR 60.752(b)(2)(ii)(A)(4) through the use of a collection system not conforming to the specifications provided in 40 CFR 60.759 shall provide information satisfactory to the Office of Air Quality (OAQ) as specified in 40 CFR 60.752 (b)(2)(i)(C) demonstrating that off-site migration is being controlled.

(b) For purposes of compliance with 40 CFR 60.753(a), the Permittee shall place each well or design component of a controlled landfill as specified in the approved design plan as provided in 40 CFR 60.752(b)(2)(i). Each well shall be installed no later than 60 days after the date on which the initial solid waste has been in place for a period of five (5) years or more if active or two (2) years or more if closed or at final grade.

(c) The following procedures shall be used for compliance with the surface methane operational standard as provided in 40 CFR 60.753 (d):

(1) After installation of the collection system, the Permittee shall monitor surface concentrations of methane along the entire perimeter of the collection area and along a pattern that traverses the landfill at 30 meter intervals (or a site-specific established spacing) for each collection area on a quarterly basis using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specifications provided in 40 CFR 60.755(d).

(2) The background concentration shall be determined by moving the probe inlet upwind and downwind outside the boundary of the landfill at a distance of at least 30 meters from perimeter wells.

(3) Surface emission monitoring shall be performed in accordance with section 4.3.1 of Method 21 of appendix A of 40 CFR 60, except that the probe inlet shall be placed within five (5) to ten (10) centimeters of the ground. Monitoring shall be performed during typical meteorological conditions.

(4) Any reading of 500 parts per million or more above background at any location shall be recorded as a monitored exceedance and the actions specified in 40 CFR 60.755(c)(4)(i) through (v) should be taken. As long as the specified actions are taken, the exceedance is not a violation of the operational requirements of 40 CFR 60.753(d).

The location of each monitored exceedance shall be marked and the location recorded.

Cover maintenance or adjustments to the vacuum of the adjacent wells to increase the gas collection in the vicinity of each exceedance shall be made and the location shall be re-monitored within ten (10) calendar days of detecting the exceedance.

If the re-monitoring of the location shows a second exceedance, additional corrective action shall be taken and the location shall be monitored again within ten (10) days of the second exceedance. If re-monitoring shows a third exceedance for the same location, the action specified in paragraph 40 CFR 60.755(c)(4)(v) shall be taken, and no further monitoring of that location is required until the action specified in 40 CFR 60.755(c)(4)(v) has been taken.

Any location that initially showed an exceedance but has a methane concentration less than 500 ppm methane above background at the 10-day re-monitoring specified in 40 CFR 60.755(c)(4)(ii) or (iii) shall be re-monitored one (1) month from the initial exceedance. If the one (1)-month re-monitoring shows a concentration less than 500 parts per million above background, no further monitoring of that location is required until the next quarterly monitoring period. If the one (1)-month remonitoring shows an exceedance, the actions specified in 40 CFR 60.755(c)(4)(iii) or (v) shall be taken.

For any location where monitored methane concentration equals or exceeds 500 parts per million above background three times within a quarterly period, a new well or other collection device shall be installed within 120 calendar days of the initial exceedance. An alternative remedy to the exceedance, such as upgrading the blower, header pipes or control device, and a corresponding timeline for installation may be submitted to the Office of Air Quality (OAQ) for approval.

(5) The Permittee shall implement a program to monitor for cover integrity and implement cover repairs as necessary on a monthly basis.

(d) The Permittee seeking to comply with the provisions of 40 CFR 60.755(c) shall comply with the following instrumentation specifications and procedures for surface emission monitoring devices:

(1) The portable analyzer shall meet the instrument specifications provided in section 3 of Method 21 of appendix A of 40 CFR 60, except the “methane” shall replace all references to volatile organic compound (VOC).

(2) The calibration gas shall be methane, diluted to a nominal concentration of 500 parts per million in air.

(3) To meet the performance evaluation requirements in section 3.1.3 of Method 21 of appendix A of 40 CFR 60, the instrument evaluation procedures of section 4.4 of Method 21 of appendix A of 40 CFR 60 shall be used.

(4) The calibration procedures provided in section 4.2 of Method 21 of appendix A of 40 CFR 60 shall be followed immediately before commencing a surface monitoring survey.

(e) The provisions of 40 CFR 60.755 shall apply at all times, except during periods of start-up, shutdown, or malfunction, provided that the duration of start-up, shutdown, or malfunction, shall not exceed five (5) days for collection systems and shall not exceed one (1) hour for treatment or control devices.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)]

D.1.12 Non Methane Organic Compound (NMOC) Rate Calculation [40 CFR 60.754]

Pursuant to 40 CFR 60.754 the Permittee shall:

(a) Calculate the non methane organic compound (NMOC) emission rate using either the equation provided in 40 CFR 60.754(a)(1)(i) or the equation provided in 40 CFR 60.754(a)(1)(ii). Both equations may be used if the actual year-to-year solid waste acceptance rate is known, as specified in 40 CFR 60.754(a)(1)(i), for part of the life of the landfill and the actual year-to-year solid waste acceptance rate is unknown, as specified in paragraph 40 CFR 60.754(a)(1)(ii), for part of the life of the landfill. The values to be used in both equations are 0.05 per year for k, 170 cubic meters per megagram for L_o, and 4,000 parts per million by volume as hexane for the C_{NMOC}. For landfills located in geographical areas with a thirty year annual average precipitation of less than 25 inches, as measured at the nearest representative official meteorologic site, the k value to be used is 0.02 per year.

The following equation shall be used if the actual year-to-year solid waste acceptance rate is known:

$$M_{NMOC} = \sum_{i=1}^{n} 2\, k\, L_O\, M_i\, (e^{-kt_i})\, (C_{NMOC})\, (3.6x10^{-9})$$

where,

M_{NMOC}= Total NMOC emission rate from the landfill, megagrams per year
k = methane generation rate constant, $year^{-1}$
L_o= methane generation potential, cubic meters per megagram solid waste
M_i= mass of solid waste in the i^{th} section, megagrams
t_i= age of the i^{th} section, years
C_{NMOC}= concentration of NMOC, parts per million by volume as hexane
3.6×10^{-9}= conversion factor

The mass of the nondegradable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating the value for M_i if documentation of the nature and amount of such wastes is maintained.

The following equation shall be used if the actual year-to-year solid waste acceptance rate is unknown:

$$M_{NMOC} = 2\, L_o\, R\, (e^{-kc} - e^{-kt})(C_{NMOC})(3.6 \times 10^{-9})$$

where,

M_{NMOC} = mass emission rate of NMOC, megagrams per year

L_o = methane generation potential, cubic meters per megagram solid waste
R = average annual acceptance rate, megagrams per year
k = methane generation rate constant, year $^{-1}$
t = age of landfill, years
C_{NMOC} = concentration of NMOC, parts per million by volume as hexane
c = time since closure, years. For active landfill c = 0 and e^{-kc} = 1
3.6 x 10^{-9} = conversion factor

The mass of the nondegradable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating the value for R, if documentation of the nature and amount of such wastes is maintained.

(b) Tier 1. The Permittee shall compare the calculated NMOC mass emission rate to the standard of 50 megagrams per year.

If the NMOC emission rate calculated in 40 CFR 60.754(a)(1) is less than 50 megagrams per year, then the landfill owner shall submit an emission rate report as provided in 40 CFR 60.757(b)(1), and shall recalculate the NMOC mass emission rate annually as required under 40 CFR 60.752(b)(1). If the calculated NMOC emission rate is equal to or greater than 50 megagrams per year, then the Permittee shall either comply with 40 CFR 60.752(b)(2), or determine a site-specific NMOC concentration and recalculate the NMOC emission rate using the procedures provided in 40 CFR 60.754(a)(3).

Tier 2. The Permittee shall determine the NMOC concentration using the following sampling procedure. The Permittee shall install at least two sample probes per hectare of landfill surface that has retained waste for at least 2 years. If the landfill is larger that 25 hectares in area, only 50 samples are required. The sample probes should be located to avoid known areas of nondegradable solid waste. The Permittee shall collect and analyze one sample of landfill gas from each probe to determine the NMOC concentration using Method 25 or 25C of appendix A of 40 CFR 60. Method 18 of Appendix A of 40 CFR 60 may be used to analyze the samples collected by the Method 25 or 25C sampling procedure. If using Method 18 of appendix A of 40 CFR 60, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42), minus carbon monoxide, hydrogen sulfide, and mercury. If composite sampling is used, equal volumes shall be taken from each sample probe. If more than the required number of samples are taken, all samples shall be used in analysis. The Permittee shall divide the NMOC concentration from Method 25C of appendix A by six to convert from C_{NMOC} as carbon to C_{NMOC} as hexane.

The Permittee shall recalculate the NMOC mass emission rate using the equations provided in 40 CFR 60.754(a)(1)(i) and (a)(1)(ii) and using the average NMOC concentration from the collected samples instead of the default value in the equation provided in 40 CFR 60.754(a)(1).

If the resulting mass emission rate calculated using the site-specific NMOC concentration is equal to or greater that 50 megagrams per year, then the Permittee shall either comply with 40 CFR 60.752(b)(2), or determine the site-specific methane generation rate constant and recalculate the NMOC emission rate using the site-specific methane generation rate using the procedure specified in 40 CFR 60.754(a)(4).

If the resulting NMOC mass emission rate is less than 50 megagrams per year, the Permittee shall submit a periodic estimate of the emission rate report as provided in 40 CFR 60.757(b)(1) and retest the site-specific NMOC concentration every five (5) years using the methods in 40 CFR 60.754(a)(3).

Tier 3. The site-specific methane generation rate constant shall be determined using the procedures provided in Method 2E of appendix A of 40 CFR 60. The Permittee shall estimate the NMOC mass emission rate using equations in 40 CFR 60.754(a)(1)(i) or (a)(1)(ii) and using a site-specific methane generation rate constant k, and the site-specific NMOC concentration as determined in 40 CFR 60.754(a)(3) instead of the default values provided in 40 CFR 60.754(a)(1). The Permittee shall compare the resulting NMOC mass emission rate to the standard of 50 megagrams per year.

If the NMOC mass emission rate as calculated using the site-specific methane generation rate and concentration of NMOC is equal to or greater than 50 megagrams per year, the Permittee shall comply with 40 CFR 60.752(b)(2).

If the NMOC mass emission rate is less than 50 megagrams per year, then the Permittee shall submit a periodic emission rate report as provided in 40 CFR 60.757(b)(1) and shall recalculate the NMOC mass emission rate annually, as provided in 40 CFR 60.757(b)(1) using the equations in 40 CFR 60.754(a)(1) and using the site-specific methane generation rate constant and NMOC concentration obtained in 40 CFR 60.754(a)(3). The calculation of the methane generation rate constant is performed only once, and the value obtained from this test shall be used in all subsequent annual NMOC emission rate calculations.

The Permittee may use other methods to determine the NMOC concentration or a site-specific k as an alternative to the methods required in 40 CFR 60.754(a)(3) and (a)(4) if the method has been approved by the Office of Air Quality.

(c) When calculating emissions for PSD purposes, the owner or operator of each municipal solid waste landfill subject to 40 CFR 60.754 shall estimate the NMOC emission rate for comparison to the PSD major source and significance levels in 40 CFR 51.166 or 40 CFR 52.21 using AP-42 or other approved measurement procedures. If a collection system, which complies with the provisions of 40 CFR 60.752(b)(2) is already installed, the Permittee shall estimate the NMOC emission rate using the procedures provided in 40 CFR 60.754(b).

D.1.13 Reporting Requirements [40 CFR 60.757]

Pursuant to 40 CFR 60.757, except as provided in 40 CFR 60.752(b)(2)(i)(B), the Permittee shall:

(a) Submit an initial design capacity report to the Office of Air Quality (OAQ) no later than 90 days after the date of commenced modification for this landfill that commenced modification on or after March 12, 1996. An amended design capacity report shall be submitted to the Office of Air Quality (OAQ) providing notification of any increase in the design capacity of the landfill. Although not subject to this rule at the time, the Permittee submitted an initial design capacity report to IDEM, OAQ on June 13, 1996. An amended design capacity report was submitted on August 10, 2001 to provide notice of this increase in the design capacity.

(b) Submit a non methane organic compound (NMOC) emission rate report to the Office of Air Quality initially and annually thereafter, except as provided for in 40 CFR 60.757(b)(1)(ii) or (b) (3). The Office of Air Quality (OAQ) may request such additional information as may be necessary to verify the reported NMOC emission rate. The report should contain an annual or 5-year estimate of the non methane organic compound (NMOC) emission rate using the formula and procedures provided in 40 CFR 60.754 (a) or (b), as applicable. The initial NMOC emission rate report may be combined with the initial design capacity report required in 40 CFR 60.757(a) and shall be submitted no later than indicated in paragraphs 40 CFR 60.757(b)(1)(i)(A) and (B): June 10, 1996, for landfills that commenced construction, modification, or reconstruction on or after May 30, 1991, but before March 12, 1996, or ninety days after the date of commenced construction, modification, or reconstruction for landfills that commence construction, modification, or reconstruction on or after March 12, 1996. Subsequent NMOC emission rate reports shall be submitted annually thereafter, except as provided in 40 CFR 60.757(b)(1)(ii) and (b)(3). If the estimated NMOC emission rate as reported in the annual report to the Office of Air Quality (OAQ) is less than 50 megagrams per year in each of the next five (5) consecutive years, the Permittee may elect to submit an estimate of the NMOC emission rate for the next five (5) year period in lieu of the annual report. This estimate shall include the current amount of solid waste-in-place and the estimated waste acceptance rate for each year of the five (5) years for which an NMOC emission rate is estimated. All data and calculations upon which this estimate is based shall be provided to the Office of Air Quality (OAQ). This estimate shall be revised at least once every five (5) years. If the actual waste acceptance rate exceeds the estimated waste acceptance rate in any year reported in the five (5) year estimate, a revised five (5) year estimate shall be submitted to the Office of Air Quality. The revised estimate shall cover the five (5) year period beginning with the year in which the actual waste acceptance rate exceeded the estimated waste acceptance rate. The NMOC emission rate report shall include all the data, calculations, sample reports, and measurements used to estimate the annual or five (5) year emission rate. The Permittee is exempted from the requirements of 40 CFR 60.757(b)(1) and (2) after the installation of a collection and control system in compliance with 40 CFR 60.752 (b)(2), during such time as the system is in operation and in compliance with 40 CFR 60.753 and 60.755.

(c) Submit a collection and control system design plan to the Office of Air Quality (OAQ) within one (1) year of the first non methane organic compound (NMOC) emission rate report, required under 40 CFR 60.757(b), in which NMOC emission rate exceeds 50 megagrams (Mg) per year; except if the Permittee elects to recalculate the NMOC emission rate after Tier 2 sampling and analysis as provided in 40 CFR 60.754(a)(3) and the resulting rate is less than 50 megagrams per year, annual periodic reporting shall be resumed, using the Tier 2 determined site-specific NMOC concentration, until the calculated emission rate is equal to or greater than 50 megagrams per year or the landfill is closed. The revised NMOC emission rate report, with the recalculated emission rate based on NMOC sampling and analysis, shall be submitted within 180 days of the first calculated exceedance of 50 megagrams per year. If the Permittee elects to recalculate the NMOC emission rate after determining a site-specific methane generation rate constant (k), as provided in Tier 3 in 40 CFR 60.754(a)(4), and the resulting NMOC emission rate is less than 50 megagrams per year, annual periodic reporting shall be resumed. The resulting site-specific methane generation rate constant (k) shall be used in the emission rate calculation until such time as the emissions rate calculation results in an exceedance. The revised NMOC emission rate report based on the provisions of 40 CFR 60.754(a)(4) and the resulting site-specific methane generation rate constant (k) shall be submitted to the Office of Air Quality

(OAQ) within one (1) year of the first calculated emission rate exceeding 50 megagrams per year.

(d) Submit a closure report to the Office of Air Quality (OAQ) within thirty days of waste acceptance cessation. The Office of Air Quality (OAQ) may request additional information as may be necessary to verify that permanent closure has taken place in accordance with the requirements of 40 CFR 258.60. If a closure report has been submitted to the Office of Air Quality (OAQ), no additional wastes may be placed into the landfill without filing a notification of modification as described under 40 CFR 60.7(a)(4).

(e) Submit an equipment removal report to the Office of Air Quality (OAQ) thirty (30) days prior to removal or cessation of operation of the control equipment that was installed pursuant to 40 CFR 60.752(b)(2). The equipment removal report shall contain all of the following items: a copy of the closure report submitted in accordance with 40 CFR 60.757(d), a copy of the initial performance test report demonstrating that the fifteen (15) year minimum control period has expired, and dated copies of three (3) successive NMOC emission rate reports demonstrating that the landfill is no longer producing 50 megagrams or greater of NMOC per year. The Office of Air Quality (OAQ) may request such additional information as may be necessary to verify that all of the conditions for removal in 40 CFR 60.752(b)(2)(v) have been met.

(f) Annual reports of the following recorded information. The initial annual report shall be submitted within 180 days of installation and start-up of the collection and control system when the calculated NMOC emission rate equals or exceeds 50 megagrams per year, and shall include the initial performance test report required under 40 CFR 60.8. For enclosed combustion devices and flares, reportable exceedances are defined under 40 CFR 60.758(c).

(1) Value and length of time for exceedance of applicable parameters monitored under 40 CFR 60.756(a), (b), (c), and (d).

(2) Description and duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow as specified under 40 CFR 60.756.

(3) Description and duration of all periods when the control device was not operating for a period exceeding one (1) hour and length of time the control device was not operating.

(4) All periods when the collection system was not operating in excess of five (5) days.

(5) Location of each exceedance of the 500 parts per million methane concentration as provided in 40 CFR 60.753(d) and the concentration recorded at each location for which an exceedance was recorded in the previous month.

(6) Date of installation and the location of each well or collection system expansion added pursuant to 40 CFR 60.755(a)(3), (b), and (c)(4).

(g) The Permittee seeking to comply with 40 CFR 60.752(b)(2)(iii), when the calculated NMOC emission rate equals or exceeds 50 megagrams per year, shall include the following information with the initial performance test report required under 40 CFR 60.8:

(1) A diagram of the collection system showing collection system positioning including all wells, horizontal collectors, surface collectors, or other gas extraction devices, including the locations of any areas excluded from collection and the proposed sites for the future collection system expansion.

(2) The data upon which the sufficient density of wells, horizontal collectors, surface collectors, or other gas extraction devices and the gas mover equipment sizing are based.

(3) The documentation of the presence of asbestos or nondegradable material for each area from which collection wells have been excluded based on the presence of asbestos or nondegradable material.

(4) The sum of the gas generation flow rates for all areas from which collection wells have been excluded based on nonproductivity and the calculations of gas generation flow rate for each excluded area.

(5) The provisions for increasing gas mover equipment capacity with increased gas generation flow rate, if the present gas mover equipment is inadequate to move the maximum flow rate expected over the life of the landfill

(6) The provision for the control of off-site migration.

(h) A summary of the above information shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit.

D.1.14 Record Keeping Requirements [326 IAC 12] [40 CFR 60.758]

Pursuant to 40 CFR 60.758:

(a) Except as provided in 40 CFR 60.752(b)(2)(i)(B), the Permittee subject to 40 CFR 60.752(b) shall keep for at least 5 years up-to-date, readily accessible, on-site records of the design capacity report which triggered 40 CFR 60.752(b), the current amount of solid waste in-place, and the year-by-year waste acceptance rate. Off-site records may be maintained if they are retrievable within four (4) hours. Either paper copy or electronic formats are acceptable.

(b) Except as provided in 40 CFR 60.752(b)(2)(i)(B), when the calculated NMOC emission rate equals or exceeds 50 megagrams per year, the Permittee of a controlled landfill shall keep up-to-date, readily accessible records for the life of the control equipment of the data listed in (1) through (4) below as measured during the initial performance test or compliance determination. Records of subsequent tests or monitoring shall be maintained for a minimum of five (5) years. Records of control device vendor specifications shall be maintained until removal.

(1) Where the Permittee subject to the provisions of 40 CFR 60.758 seeks to demonstrate compliance with 40 CFR 60.752(b)(2)(ii):

The maximum expected gas generation flow rate as calculated in 40 CFR 60.755(a)(1). The Permittee may use another method to determine the maximum gas generation flow rate, if the method has been approved by the Office of Air Quality (OAQ).

The density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in 40 CFR 60.759(a)(1).

(2) Where the Permittee subject to the provisions of 40 CFR 60.758 seeks to demonstrate compliance with 40 CFR 60.752(b)(2)(iii) through use of an enclosed combustion device other than a boiler or process heater with a design heat input capacity greater than 44 megawatts:

The average combustion temperature measured at least every fifteen (15) minutes and averaged over the same time period of the performance test.

The percent reduction of NMOC determined as specified in 40 CFR 60.752(b)(2)(iii)(B) achieved by the control device.

(3) Where the Permittee subject to the provisions of 40 CFR 60.758 seeks to demonstrate compliance with 40 CFR 60.752(b)(2)(iii)(B)(1) through use of a boiler or process heater of any size: a description of the location at which the collected gas vent stream is introduced into the boiler or process heater over the same time period of the performance testing.

(4) Where the Permittee subject to the provisions of 40 CFR 60.758 seeks to demonstrate compliance with 40 CFR 60.752(b)(2)(iii)(A) through use of an open flare, the flare type (i.e., steam-assisted, air -assisted, or nonassisted), all visible emission readings, heat content determination, flow rate or bypass flow rate measurements, and exit velocity determinations made during the performance test as specified in 40 CFR 60.18; continuous records of the flare pilot flame or flare flame monitoring and records of all periods of operations during which the pilot flame of the flare flame is absent.

(c) Except as provided in 40 CFR 60.752(b)(2)(i)(B), when the calculated NMOC emission rate equals or exceeds 50 megagrams per year, the Permittee of a controlled landfill subject to the provisions of this subpart shall keep for 5 years up-to-date, readily accessible continuous records of the equipment operating parameters specified to be monitored in 40 CFR 60.756 as well as up-to-date, readily accessible records for periods of operation during which the parameter boundaries established during the most recent performance test are exceeded.

(1) The following constitute exceedances that shall be recorded and reported under 40 CFR 60.757(f):

For enclosed combustors except for boilers and process heaters with design heat input capacity of 44 megawatts (150 million British thermal unit per hour) or greater, all 3-hour periods of operation during which the average combustion temperature was more than 28EC below the average combustion temperature during the most recent performance test at which compliance with 40 CFR 60.752(b)(2)(iii) was determined.

For boilers or process heaters, whenever there is a change in the location at which the vent stream is introduced into the flame zone as required under 40 CFR 60.758(b)(3)(i).

(2) The Permittee subject to 40 CFR 60.758 shall keep up-to-date, readily accessible continuous records of the indication of flow to the control device or the indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines, specified under 40 CFR 60.756.

(3) The Permittee subject to the provisions of 40 CFR 60.758 who uses a boiler or process heater with a design heat input capacity of 44 megawatts or greater to comply with 40 CFR 60.752(b)(2)(iii) shall keep an up-to-date, readily accessible record of all periods of operation of the boiler or process heater. (Examples of such records could include records of steam use, fuel use, or monitoring data collected pursuant to other State, local, Tribal or Federal regulatory requirements.)

(4) The Permittee seeking to comply with the provisions of 40 CFR 60.758 by use of an open flare shall keep up-to-date, readily accessible continuous records of the flame or flare pilot flame monitoring specified under 40 CFR 60.756(c), and up-to-date, readily accessible records of all periods of operation in which the flame or flare pilot flame is absent.

(d) Except as provided in 40 CFR 60.752(b)(2)(i)(B), when the calculated NMOC emission rate equals or exceeds 50 megagrams per year, the Permittee subject to the provisions of this subpart shall keep for the life of the collection system an up-to-date, readily accessible plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector.

(1) The Permittee subject to the provisions of 40 CFR 60.758 shall keep up-to-date, readily accessible records of the installation date and location of all newly installed collectors as specified in 40 CFR 60.755 (b).

(2) The Permittee subject to the provisions of 40 CFR 60.758 shall keep readily accessible documentation of the nature, date of deposition, amount, and location of asbestos-containing or nondegradable waste excluded from collection as provided in 40 CFR 60.759 (a)(3)(i) as well as any non-productive areas excluded from collection as provided in 40 CFR 60.759 (a)(3)(ii).

(e) Except as provided in 40 CFR 60.752(b)(2)(i)(B), when the calculated NMOC emission rate equals or exceeds 50 megagrams per year, the Permittee subject to the provisions of this subpart shall keep for at least 5 years up-to-date, readily accessible records of all collection and control system exceedances of the operational standards in 40 CFR 60.753, the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance.

D.1.15 Record Keeping Requirements

(a) To document compliance with Condition D.1.6, the Permittee shall maintain records of the throughput of liquid waste, in gallons, to the waste solidification process. The records shall be taken monthly and shall be complete and sufficient to establish compliance with the VOC emission limit established in Condition D.1.6.

(b) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.1.16 Reporting Requirements

A quarterly summary of the information to document compliance with Condition D.1.6 shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

SECTION D.2 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description
(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

(e) one (1) diesel on-road 15,000 gallon storage tank; and
(v) maintenance cold cleaner degreasers, with total annual solvent usage of less than 145 gallons.

Emission Limitations and Standards

D.2.1 Volatile Organic Compounds (VOCs) [326 IAC 12] [40 CFR 60.110b, Subpart Kb]

Pursuant to 40 CFR Part 60.110b, Subpart Kb (Standards of Performance for Volatile Organic Liquid Storage Vessels), the one (1) 15,000 gallon diesel on-road storage tank, with a storage capacity less than 75 cubic meters, is subject to 40 CFR Part 60.116b, paragraphs (a) and (b), which require record keeping.

D.2.2 Volatile Organic Compounds (VOC) [326 IAC 8-3-2]

Pursuant to 326 IAC 8-3-2 (Cold Cleaner Operations), the owner or operator of the maintenance cold cleaner degreasers shall:

(a) Equip the cleaner with a cover;

(b) Equip the cleaner with a facility for draining cleaned parts;

(c) Close the degreaser cover whenever parts are not being handled in the cleaner;

(d) Drain cleaned parts for at least fifteen (15) seconds or until dripping ceases;

(e) Provide a permanent, conspicuous label summarizing the operation requirements;

(f) Store waste solvent only in covered containers and not dispose of waste solvent or transfer it to another party, in such a manner that greater than twenty percent (20%) of the waste solvent (by weight) can evaporate into the atmosphere.

Compliance Determination Requirement

D.2.3 Testing Requirements [326 IAC 2-8-5(a)(1), (4)][326 IAC 2-1.1-11]

The Permittee is not required to test this facility by this permit. However, IDEM may require compliance testing at any specific time when necessary to determine if the facility is in compliance. If testing is required by IDEM, compliance with the VOC limits specified in Conditions D.2.1 and D.2.2 shall be determined by a performance test conducted in accordance with Section C - Performance Testing.

Record Keeping and Reporting Requirements [326 IAC 2-5.1-3(e)(2)] [326 IAC 2-6.1-5(a)(2)]

D.2.4 Record Keeping Requirements

(a) To document compliance with Condition D.2.1, the Permittee shall maintain permanent records at the source in accordance with (1) and (2) below:

(1) the dimension of the storage vessel; and

(2) an analysis showing the capacity of the storage vessel.

(b) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
Office of Air Quality
COMPLIANCE DATA SECTION

MINOR SOURCE OPERATING PERMIT
ANNUAL NOTIFICATION

This form should be used to comply with the notification requirements under 326 IAC 2-6.1-5(a)(5).

Company Name:	**Rumpke of Indiana, LLC - Worthington Sanitary Landfill**
Address:	**County Road 500**
City:	**Worthington, Indiana 46176**
Phone #:	**513-851-0122, ext. 3162**
MSOP #:	**055-11614-00036**

I hereby certify that the Worthington Sanitary Landfill is
9 still in operation.
9 no longer in operation.

I hereby certify that the Worthington Sanitary Landfill is
9 in compliance with the requirements of MSOP **055-11614-00036**.
9 not in compliance with the requirements of MSOP **055-11614-00036**.

Authorized Individual (typed):
Title:
Signature:
Date:

If there are any conditions or requirements for which the source is not in compliance, provide a narrative description of how the source did or will achieve compliance and the date compliance was, or will be achieved.

Noncompliance:

Indiana Department of Environmental Management
Office of Air Quality
Compliance Data Section

Quarterly Report

Company Name: Rumpke of Indiana, LLC - Worthington Sanitary Landfill
Location: County Road 500, Worthington, Indiana 46176
Permit No.: MSOP 055-11614-00036
Source: Waste solidification process
Pollutant: VOC
Limit: The throughput of liquid waste to the waste solidification process shall not exceed 6,240,000 gallons per twelve (12) consecutive month period, rolled on a monthly basis.

YEAR: _____

Month	Column 1	Column 2	Column 1 + Column 2
	Liquid Waste Throughput This Month (gallons)	Liquid Waste Throughput Previous 11 Months (gallons)	12 Month Total Liquid Waste Throughput (gallons)

9 No deviation occurred in this quarter.

9 Deviation/s occurred in this quarter.
Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

Attach a signed certification to complete this report.

MALFUNCTION REPORT

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
Office of Air Quality
FAX NUMBER - 317 233-5967

This form should only be used to report malfunctions applicable to Rule 326 IAC 1-6 and to qualify for the exemption under 326 IAC 1-6-4.

THIS FACILITY MEETS THE APPLICABILITY REQUIREMENTS BECAUSE IT HAS POTENTIAL TO EMIT 25 TONS/YEAR PARTICULATE MATTER ?_____, 25 TONS/YEAR SULFUR DIOXIDE ?_____, 25 TONS/YEAR NITROGEN OXIDES?_____, 25 TONS/YEAR VOC ?_____, 25 TONS/YEAR HYDROGEN SULFIDE ?_____, 25 TONS/YEAR TOTAL REDUCED SULFUR ?_____, 25 TONS/YEAR REDUCED SULFUR COMPOUNDS ?_____, 25 TONS/YEAR FLUORIDES ?_____, 100TONS/YEAR CARBON MONOXIDE ?_____, 10 TONS/YEAR ANY SINGLE HAZARDOUS AIR POLLUTANT ?_____, 25 TONS/YEAR ANY COMBINATION HAZARDOUS AIR POLLUTANT ?_____, 1 TON/YEAR LEAD OR LEAD COMPOUNDS MEASURED AS ELEMENTAL LEAD ?_____, OR IS A SOURCE LISTED UNDER 326 IAC 2-5.1-3(2) ?_____. EMISSIONS FROM MALFUNCTIONING CONTROL EQUIPMENT OR PROCESS EQUIPMENT CAUSED EMISSIONS IN EXCESS OF APPLICABLE LIMITATION _____.

THIS MALFUNCTION RESULTED IN A VIOLATION OF: 326 IAC _____ OR, PERMIT CONDITION # _____ AND/OR PERMIT LIMIT OF _____

THIS INCIDENT MEETS THE DEFINITION OF 'MALFUNCTION' AS LISTED ON REVERSE SIDE ? Y N

THIS MALFUNCTION IS OR WILL BE LONGER THAN THE ONE (1) HOUR REPORTING REQUIREMENT ? Y N

COMPANY: Rumpke of Indiana, LLC - Worthington Sanitary Landfill PHONE NO. (513) 851-0122, ext. 3162
LOCATION: (CITY AND COUNTY) Worthington, Greene County
PERMIT NO. MSOP 055-11614 AFS PLANT ID: 055-00036 AFS POINT ID: _____ INSP: Marc Goldman
CONTROL/PROCESS DEVICE WHICH MALFUNCTIONED AND REASON: _____

DATE/TIME MALFUNCTION STARTED: _____/_____/ 20____ _____ AM / PM

ESTIMATED HOURS OF OPERATION WITH MALFUNCTION CONDITION: _____

DATE/TIME CONTROL EQUIPMENT BACK-IN SERVICE_____/_____/ 20____ _____ AM/PM

TYPE OF POLLUTANTS EMITTED: TSP, PM-10, SO2, VOC, OTHER: _____

ESTIMATED AMOUNT OF POLLUTANT EMITTED DURING MALFUNCTION: _____

MEASURES TAKEN TO MINIMIZE EMISSIONS: _____

REASONS WHY FACILITY CANNOT BE SHUTDOWN DURING REPAIRS:

CONTINUED OPERATION REQUIRED TO PROVIDE ESSENTIAL* SERVICES: _____
CONTINUED OPERATION NECESSARY TO PREVENT INJURY TO PERSONS: _____
CONTINUED OPERATION NECESSARY TO PREVENT SEVERE DAMAGE TO EQUIPMENT: _____
INTERIM CONTROL MEASURES: (IF APPLICABLE) _____

MALFUNCTION REPORTED BY: _____ TITLE: _____
(SIGNATURE IF FAXED)

MALFUNCTION RECORDED BY: _____ DATE: _____ TIME: _____

*SEE PAGE 2

Please note - This form should only be used to report malfunctions applicable to Rule 326 IAC 1-6 and to qualify for the exemption under 326 IAC 1-6-4.

326 IAC 1-6-1 Applicability of rule

Sec. 1. This rule applies to the owner or operator of any facility required to obtain a permit under 326 IAC 2-5.1 or 326 IAC 2-6.1.

326 IAC 1-2-39 "Malfunction" definition

Sec. 39. Any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner.

***Essential services** are interpreted to mean those operations, such as, the providing of electricity by power plants. Continued operation solely for the economic benefit of the owner or operator shall not be sufficient reason why a facility cannot be shutdown during a control equipment shutdown.

If this item is checked on the front, please explain rationale:

_____

_____

Indiana Department of Environmental Management
Office of Air Quality

Addendum to the
Technical Support Document for a Permit Revision to a
Minor Source Operating Permit

Source Name:	Rumpke of Indiana, LLC - Worthington Sanitary Landfill
Source Location:	County Road 500, Worthington, Indiana 46176
County:	Greene
SIC Code:	4953
Operation Permit No.:	MSOP 055-11614-00036
Operation Permit Issuance Date:	July 5, 2000
Permit Revision No.:	055-15317-00036
Permit Reviewer:	Trish Earls/EVP

On March 13, 2002, the Office of Air Quality (OAQ), had a notice published in the Linton Daily Citizen, Linton, Indiana stating that Rumpke of Indiana, LLC had applied for a Significant Permit Revision to a Minor Source Operating Permit (MSOP) to request approval to increase the capacity of the landfill from 2.358 million megagrams (Mg) to 6.337 million Mg. The notice also stated that the OAQ proposed to issue a permit for this installation and provided information on how the public could review the proposed permit and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

On April 8, 2002, Srikishan V. Koniki of Optim Environmental Resources, Inc. submitted comments on behalf of Rumpke of Indiana, LLC on the proposed permit. A summary of the comment and response is as follows:

Comment #1

It is our understanding that the Reporting Requirement in condition D.1.13(e) is applicable to control systems that are installed pursuant to the NSPS Subpart WWW requirements (i.e., when NMOC emissions exceed 50 Mg/yr). It is our understanding that should a control device such as a passive flare or flare for controlling off-site gas migration be installed, prior to the NMOC emissions exceeding 50 Mg/yr, this control device will not be subject to this reporting requirement. We respectfully request IDEM, OAQ to clarify this issue and include the appropriate wording accordingly.

Response #1

Pursuant to 40 CFR 60.757(e), Reporting Requirements, the requirement to submit an equipment removal report applies to the owner or operator of a controlled landfill. Pursuant to 40 CFR 60.751, Definitions, a controlled landfill is defined as “any landfill at which collection and control systems are required under this subpart as a result of the nonmethane organic compounds emission rate.” Therefore, the control device referred to in 40 CFR 60.757(e) and condition D.1.13(e) is the control device installed to comply with the requirements of Subpart WWW when NMOC emissions exceed 50 Mg per year. The equipment removal report would not be applicable to control equipment installed when the NMOC emissions are less than 50 Mg per year. To clarify this, condition D.1.13(e) is revised as follows:

D.1.13 Reporting Requirements [40 CFR 60.757]

(e) Submit an equipment removal report to the Office of Air Quality (OAQ) thirty (30) days prior to removal or cessation of operation of the control equipment **that was installed pursuant to 40 CFR 60.752(b)(2)**. The equipment removal report shall contain all of the following items: a copy of the closure report submitted in accordance with 40 CFR 60.757(d), a copy of the initial performance test report demonstrating that the fifteen (15) year minimum control period has expired, and dated copies of three (3) successive NMOC emission rate reports demonstrating that the landfill is no longer producing 50 megagrams or greater of NMOC per year. The Office of Air Quality (OAQ) may request such additional information as may be necessary to verify that all of the conditions for removal in 40 CFR 60.752(b)(2)(v) have been met.

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for a Permit Revision to a Minor Source Operating Permit

Source Background and Description

Source Name:	**Rumpke of Indiana, LLC - Worthington Sanitary Landfill**
Source Location:	**County Road 500, Worthington, Indiana 46176**
County:	**Greene**
SIC Code:	**4953**
Operation Permit No.:	**MSOP 055-11614-00036**
Operation Permit Issuance Date:	**July 5, 2000**
Permit Revision No.:	**055-15317-00036**
Permit Reviewer:	**Trish Earls/EVP**

The Office of Air Quality (OAQ) has reviewed a revision application from Rumpke of Indiana, LLC relating to the operation of a municipal solid waste sanitary landfill.

History

On December 20, 2001, Rumpke of Indiana, LLC submitted an application to the OAQ requesting to increase the capacity of the landfill from 2.358 million megagrams (Mg) to 6.337 million Mg. This increase in capacity now makes this source subject to the requirements of the New Source Performance Standard (NSPS), 40 CFR 60.750 through 60.759, Subpart WWW. This source was issued a landfill expansion permit by the IDEM, Office of Land Quality on May 29, 2001. Rumpke of Indiana, LLC has submitted an amended design capacity report to IDEM on August 10, 2001.

This modification also includes increases to the solid waste dumping operations and landfill roadway use as well as the addition of a landfill gas flare to reflect the expansion in landfill capacity and the applicability of the NSPS. The source is also installing a new waste solidification process and a new 772,000 gallon capacity Leachate Storage Basin #2.

Rumpke of Indiana, LLC - Worthington Sanitary Landfill was issued a Minor Source Operating permit on July 5, 2000. Because this source is now subject to the NSPS, 40 CFR 60.750 through 60.759, Subpart WWW, this source will be subject to the requirements of 326 IAC 2-7 (Part 70 Permit Program) upon issuance of this permit. Therefore, the source is required to submit a Part 70 permit application within one (1) year of issuance of this permit.

Existing Approvals

The source was issued a Minor Source Operating Permit (MSOP055-11614-00036) on July 5, 2000.

Enforcement Issue

There are no enforcement actions pending.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (^{0}F)
Flare	Landfill Gas Flare	55	10.5	10,900	2,000

Recommendation

The staff recommends to the Commissioner that the Significant Permit Revision be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on December 20, 2001.

Emission Calculations

See Appendix A of this document for detailed emissions calculations (10 pages).

Potential To Emit of Modification

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as "the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA."

Pollutant	Potential To Emit (tons/year)
PM	272.74
PM-10	96.61
SO_2	4.79
VOC	61.87
CO	63.26
NO_x	18.98

Note: For the purpose of determining Title V applicability for particulates, PM-10, not PM, is the regulated pollutant in consideration.

HAP's	Potential To Emit (tons/year)
HCl	less than 10
Cresol & Isomers	greater than 10
Methyl Ethyl Ketone	greater than 10
Chlorobenzene	less than 10
Toluene	less than 10
TOTAL	less than 25

Note: Due to the large number of HAPs emitted by this source, only the five HAPs with the highest potential emissions were shown here. For more detailed HAP emission calculations see pages 3, 9, and 10 of Appendix A.

(a) The potential to emit (as defined in 326 IAC 2-1.1-1(16)) of PM10 and VOC from this modification are equal to or greater than 25 tons per year. Therefore, the MSOP is being revised through a Significant Permit Revision pursuant to 326 IAC 2-6.1-6(i). This MSOP Significant Permit Revision will give the source approval to construct and operate the new emission units.

(b) The potential to emit (as defined in 326 IAC 2-1.1-1(16)) of any single HAP is equal to or greater than ten (10) tons per year and the potential to emit (as defined in 326 IAC 2-7-1(29)) of a combination HAPs is greater than or equal to twenty-five (25) tons per year. Therefore, the MSOP is being revised through a Significant Permit Revision pursuant to 326 IAC 2-6.1-6(i). This MSOP Significant Permit Revision will give the source approval to construct and operate the new emission units.

(c) Fugitive Emissions
Since this type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-2 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive particulate matter (PM) and volatile organic compound (VOC) emissions are not counted toward determination of PSD and Emission Offset applicability.

Actual Emissions

No previous emission data has been received from the source.

Limited Potential to Emit

The table below summarizes the total potential to emit, reflecting all limits, of the significant emission units.

	Limited Potential to Emit (tons/year)						
Process/facility	PM	PM-10	SO_2	VOC	CO	NO_X	HAPs
Sanitary Landfill[(1)]	0.0	0.0	0.0	18.12	0.0	0.0	9.59
Solid Waste Dumping	0.16	0.08	0.0	0.0	0.0	0.0	0.0
Unpaved Roadways	201.72	42.58	0.0	0.0	0.0	0.0	0.0
Combustion	1.29	1.22	1.53	1.36	11.98	11.28	negl.
Solidification Process Material Storage & Handling	15.72	7.58	0.0	0.0	0.0	0.0	0.0
Landfill Gas Flare	5.22	5.22	4.79	0.65	63.26	18.98	8.92
Waste Solidification Process	0.0	0.0	0.0	13.74	0.0	0.0	13.61
Leachate Storage Basin #2	0.0	0.0	0.0	<0.1	0.0	0.0	<0.1
Total Emissions[(2)]	6.51	6.44	6.32	33.87	75.24	30.26	32.12

(1) Limited landfill emissions represent worst-case emissions from 2002 based on USEPA's Landfill Gas Emissions Model. Beginning in 2003, emissions from the landfill will be controlled by a flare.
(2) Since fugitive emissions are not counted toward PSD applicability, only the non-fugitive PM and PM-10 emissions are included in the total emissions. Non-fugitive PM and PM-10 emissions include emissions from combustion and the flare.

County Attainment Status

The source is located in Greene County.

Pollutant	Status
PM-10	attainment
SO_2	attainment
NO_2	attainment
Ozone	attainment
CO	attainment
Lead	attainment

(a) Volatile organic compounds (VOC) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Greene County has been designated as attainment or unclassifiable for ozone.

Federal Rule Applicability

(a) The municipal solid waste landfill is subject to the New Source Performance Standard, 326 IAC 12, (40 CFR 60.750 through 60.759, Subpart WWW) because the municipal solid waste landfill was modified after May 30, 1991.

(1) Pursuant to 40 CFR 60.752, a municipal solid waste landfill with a design capacity greater than 2.5 million megagrams (Mg) shall either comply with 40 CFR 60.752 (b)(2) or calculate the non methane organic compound emission (NMOC) rate for the landfill using the procedures specified in 40 CFR 60.754. (This landfill has been modified so that the design capacity has been increased to greater than 2.5 million Mg. Although this source was not previously subject to the requirements of this rule because it was constructed prior to May 30, 1991, the Permittee submitted an initial design capacity report to IDEM on June 13, 1996. The Permittee submitted an amended design capacity report on August 10, 2001.)

If the Permittee has calculated non methane organic compound (NMOC) emissions less than 50 megagrams (Mg) per year, the Permittee shall:

(A) Submit an annual NMOC report to the Office of Air Quality (OAQ);and

(B) Recalculate the non methane organic compound (NMOC) emission rate annually using the procedures specified in 40CFR 60.754(a)(1) until such time as the calculated non methane organic compound (NMOC) emission rate is equal to or greater than 50 megagrams (Mg) per year or the landfill is closed.

If the Permittee has calculated non methane organic compound (NMOC) emissions of greater than 50 megagrams per year, the Permittee shall:

(A) Submit a collection and control system design plan prepared by a professional engineer that meets the requirements of 40 CFR 60.752 (b)(2)(ii) to the Office of Air Quality (OAQ) within one year after calculated non methane organic compound (NMOC) emissions of greater than 50 megagrams (Mg) per year. The collection and control system design plan shall include any alternatives to the operational standards, test methods, procedures, compliance measures, monitoring, record keeping or reporting provisions of 40 CFR 60.753 through 40 CFR 60.758 that are proposed by the Permittee. The design plan shall either conform with specifications for active collection systems in 40 CFR 60.759 or include a demonstration to the Office of Air Quality's (OAQ) satisfaction of the sufficiency of the alternative provisions to 40 CFR 60.759. The Office of Solid and Hazardous Waste Management (OSHWM) shall review the collection and control system design plan and can either approve, disapprove, or request additional information be submitted by the Permittee.

(B) Install a collection and control system within eighteen months of the submittal of the design plan that effectively captures the gas generated within the landfill.

An active collection system shall:

(i) Be designed to handle the maximum expected gas flow rate from the entire area of the landfill that warrants control over the intended use period of the gas control or treatment system equipment.

(ii) Collect gas from each area, cell, or group of cells in the landfill in which the initial solid waste has been placed for a period of five years or more if active or two years or more if closed or at final grade.

(iii) Collect gas at a sufficient extraction rate.

(iv) Be designed to minimize off-site migration of subsurface gas.

A passive collection system shall:

(i) Comply with the provisions specified in paragraphs (B)(i), (ii) and (iv) above.

(ii) Be installed with liners on the bottom and all sides in all areas in which gas is to be collected. The liners shall be installed as required under 258.40 of the title.

(C) Route all collected gas to an open flare collection system that is designed and operated in accordance with 40 CFR 60.18.

(D) Operate the collection and control device installed to comply with this subpart in accordance with the provisions of 40 CFR 60.753, 60.755, and 60.756.

(E) Cap or remove the collection and control system provided that the following conditions are met:

(i) The landfill shall be no longer accepting solid waste and be permanently closed under the requirements of 258.60 of this title. A closure report shall be submitted to the Office of Solid and Hazardous Waste Management (OSHWM) as provided in 40 CFR 60.757 (d);

(ii) The collection and control system shall have been in operation a minimum of fifteen years; and

(iii) The calculated non methane organic compound (NMOC) gas produced by the landfill shall be less than 50 megagrams (Mg) per year on three consecutive test dates. The test dates shall be no less than 90 days apart, and no more than 180 days apart.

(2) Pursuant to 40 CFR 60.754 the Permittee shall calculate the non methane organic compound (NMOC) rate using either the equation provided in 40 CFR 60.754(a)(1)(i) or the equation provided in 40 CFR 60.754(a)(1)(ii). Both equation may be used in the actual year-to-year solid waste acceptance rate is known, as specified in 40 CFR 60.754(a)(1)(i), for part of the life of the landfill and the actual year-to-year solid waste acceptance rate is unknown, as specified in paragraph 40 CFR 60.754(a)(1)(ii), for part of the life of the landfill. The values to be used in both equations are 0.05 per year for k, 170 cubic meters per megagram for L_o , and 4,000 parts per million by volume as hexane for the C NMOC. For landfills located in geographical areas with a thirty year annual average precipitation of less than 25 inches, as measured at the nearest representative official meteorologic site, the k value to be used in 0.02 per year.

The following equation when the actual year-to-year solid waste acceptance rate is known.

$$M_{NMOC} = \sum_{i=1}^{n} 2\, k\, L_O\, M_i\, (e^{-kt_i})\, (C_{NMOC})\, (3.6 \times 10^{-9})$$

where,

M_{NMOC} =	Total NMOC emission rate from the landfill, megagrams per year k = methane generation rate constant, $year^{-1}$
L_o =	methane generation potential, cubic meters per megagram solid waste
M_i =	mass of solid waste in the i^{th} section, megagrams
t_i =	age of the i^{th} section, years
C_{NMOC} =	concentration of NMOC, parts per million by volume as hexane
3.6×10^{-9} =	conversion factor

The mass of the nondegradable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating the value for M_i if documentation of the nature and amount of such wastes is maintained.

The following equation shall be used if the actual year-to-year solid waste acceptance rate is unknown:

$$M_{NMOC} = 2\, L_o\, R\, (e^{-kc} - e^{-kt})(C_{NMOC})(3.6 \times 10^{-9})$$

where,

M_{NMOC} =	mass emission rate of NMOC, megagrams per year
L_o =	methane generation potential, cubic meters per megagram solid waste
R =	average annual acceptance rate, megagrams per year
k =	methane generation rate constant, year $^{-1}$
t =	age of landfill, years
C_{NMOC} =	concentration of NMOC, parts per million by volume as hexane
c =	time since closure, years. For active landfill c = 0 and e^{-kc} = 1
3.6×10^{-9} =	conversion factor

The mass of the nondegradable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating the value for M_i if documentation of the nature and amount of such wastes is maintained.

In order to comply with 40 CFR 60.752 (b)(2)(ii) the Permittee shall:

(1) Operate the collection system such that gas is collected from each area, cell, or group of cells in the municipal solid waste landfill in which solid waste has been in place for five years if active or 2 years or more if closed or at final grade.

(2) Operate the collection system with negative pressure at each wellhead except under the following conditions:

(A) Fire or increased well temperature. The Permittee shall record instances when positive pressure occurs in efforts to avoid a fire. These records shall be submitted with the annual reports as provided in 40 CFR 60.757(f)(1).

(B) Use of a geomembrane or synthetic cover. The Permittee shall develop acceptable pressure limits in the design plan.

(C) A decommissioned well. A well may experience a static positive pressure after shut down to accommodate for declining flows. All design changes shall be approved by the Office of Air Quality (OAQ).

(3) Operate each interior wellhead in the collection system with a landfill gas temperature less than 55ºC and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent. The Permittee may establish a higher operating temperature, nitrogen, or oxygen value at a particular well. A higher operating value demonstration shall show supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

(A) The nitrogen level shall be determined using Method 3C, unless an alternative method is established as allowed by 40 CFR 60.752 (b)(2)(i).

(B) Unless an alternative test method is established as allowed by 40 CFR 60.752 (b)(2)(i), the oxygen shall be determined by an oxygen meter using Method 3A except that; the span shall be set so that the regulatory limit is between 20 and 0 percent of the span; a data recorder is not required; only two calibration gases are required, a zero and span, and ambient air may be used as the span; a calibration error check is not required; the allowable sample bias, zero drift, and calibration drift are 10 percent.

(4) Operate the collection system so that the methane concentration is less than 500 parts per million above background at the surface of the landfill. To determine if this level is exceeded, the Permittee shall conduct surface testing around the perimeter of the collection area along a pattern that traverses the landfill at 30 meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover. The Permittee may establish an alternative traversing pattern that ensures equivalent coverage. A surface monitoring design plan shall be developed that includes a topographical map with the monitoring route and the rationale for any site-specific deviations from the 30 meter intervals. Areas with steep slopes or other dangerous areas may be excluded from the surface testing.

(5) Operate the system such that all collected gases are vented to a control system designed and operated in compliance with 40 CFR 60.752(b)(2)(iii). In the event the collection or control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within one hour.

(6) Operate the control system at all times when the collected gas is routed to the system.

(7) If monitoring demonstrates that the operational requirement in 40 CFR 60.753(b), (c), or (d) are not met, corrective action shall be taken as specified in 40 CFR 60.752(a)(3) through (5) or 40 CFR 60.755(c). If corrective actions are taken as specified in 40 CFR 60.755, the monitored exceedance is not a violation of the operational requirements in 40 CFR 60.753.

This landfill has a maximum design capacity of 6.337 million megagrams and a maximum NMOC emission rate of 88.76 megagrams per year (97.81 tons per year - see Appendix A, page 2 of 10).

(b) This municipal solid waste landfill is not subject to the requirements of the New Source Performance Standard, 326 IAC 12, (40 CFR 60.30c, Subpart Cc) Emissions Guidelines and Compliance Times for Municipal Solid Waste Landfills, as it was modified after May 30, 1991 to increase its capacity.

(c) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR art 63) applicable to this source.

State Rule Applicability - Entire Source

326 IAC 2-2 (Prevention of Significant Deterioration (PSD))

This modification is not subject to the requirements of this rule since the existing source was a PSD minor source and the limited potential to emit of all non-fugitive criteria pollutants is less than 250 tons per year. Although this landfill is subject to the NSPS, 40 CFR 60.750, Subpart WWW, this NSPS was not in effect on August 7, 1980, and this source is not one of the twenty-eight (28) listed source categories under 326 IAC 2-2, therefore, fugitive PM and VOC emissions are not counted toward PSD applicability.

326 IAC 2-6 (Emission Reporting)

This source is subject to 326 IAC 2-6 (Emission Reporting), because it has the potential to emit more than one hundred (100) tons per year of PM-10. Pursuant to this rule, the owner/operator of the source must annually submit an emission statement for the source. The annual statement must be received by July 1 of each year and contain the minimum requirement as specified in 326 IAC 2-6-4. The submittal should cover the period defined in 326 IAC 2-6-2(8)(Emission Statement Operating Year).

326 IAC 5-1 (Opacity Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this permit:

(a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

326 IAC 6-4 (Fugitive Dust Emissions)

The Permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions).

326 IAC 8-8.1 (Municipal Solid Waste Landfills Not Located in Clark, Floyd, Lake and Porter Counties)

The municipal solid waste landfill is subject to 326 IAC 8-8.1, which incorporates by reference the following provisions of 40 CFR 60, Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills: 40 CFR 60.751, 60.752, 60.753, 60.754, 60.755, 60.756, 60.757, 60.758 and 60.759.

State Rule Applicability - Individual Facilities

326 IAC 2-4.1-1 (New Source Toxics Control)

Pursuant to 326 IAC 2-4.1-1 (New Source Toxics Control), any source that constructs or reconstructs a major source of HAPs, which has the potential to emit (PTE) 10 tons per year of any single HAP or 25 tons per year of any combination of HAPs, must control emissions from that source using technologies consistent with the Maximum Achievable Control Technology (MACT). This source was constructed prior to the rule applicability date of July 27, 1997. This modification does not meet the definition of a construction or reconstruction of a major source of HAPs and there is no relaxation of previous HAP emission limits. It is a modification of existing source and is therefore not subject to the requirements of this rule.

326 IAC 6-3-2 (Process Operations)

(a) The particulate matter (PM) emissions from the solid waste dumping operation shall not exceed 52.62 pounds per hour, based on a maximum solid waste throughput of 114 tons per hour. This emission limit is based on the following:

Interpolation and extrapolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 55.0 P^{0.11} - 40$ where E = rate of emission in pounds per hour and P = process weight rate in tons per hour

Potential PM emissions from this operation are less than the 326 IAC 6-3-2 allowable emission rate. Therefore, this operation is in compliance with this rule.

(b) The particulate matter (PM) emissions from the mixing agent loading and unloading operations shall not exceed 44.58 pounds per hour, based on a maximum mixing agent throughput rate of 50 tons per hour. This emission limit is based on the following:

Interpolation and extrapolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 55.0\ P^{0.11} - 40$ where E = rate of emission in pounds per hour and P = process weight rate in tons per hour

Potential PM emissions from this operation are less than the 326 IAC 6-3-2 allowable emission rate. Therefore, this operation is in compliance with this rule.

(c) The particulate matter (PM) emissions from the solidified waste loading and unloading operations shall not exceed 47.05 pounds per hour, based on a maximum solidified waste throughput of 65 tons per hour. This emission limit is based on the following:

Interpolation and extrapolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 55.0\ P^{0.11} - 40$ where E = rate of emission in pounds per hour and P = process weight rate in tons per hour

Potential PM emissions from this operation are less than the 326 IAC 6-3-2 allowable emission rate. Therefore, this operation is in compliance with this rule.

326 IAC 8-1-6 (New Facilities, General Reduction Requirements)

This rule applies to facilities constructed after January 1, 1980, with potential VOC emissions greater than or equal to 25 tons per year, not regulated by other provisions of Article 8. The sanitary landfill is not subject to this rule because it is regulated by the provisions of 326 IAC 8-8.1. The waste solidification process is not regulated by 326 IAC 8-8.1 and has potential VOC emissions greater than 25 tons per year. However, this source will limit the throughput of liquid waste to the solidification process to 6,240,000 gallons per twelve (12) consecutive month period, rolled on a monthly basis. This will limit potential VOC emissions from the waste solidification process to less than 25 tons per year so that the requirements of this rule do not apply.

Changes Proposed

The changes listed below have been made to the Minor Source Operating Permit (MSOP055-11614-00036). It should also be noted that as of January 1, 2001, the Office of Air Management is now being referred to as the Office of Air Quality. Therefore, all references to the Office of Air Management have been revised to refer to the Office of Air Quality.

1. Section A.2 of the MSOP has been revised to include the revised landfill capacity and the new emission units as follows:

A.2 Emissions Units and Pollution Control Equipment Summary

This stationary source is approved to construct and operate the following emissions units and pollution control devices:

(a) one (1) municipal solid waste sanitary landfill generating landfill gas, with a maximum design capacity of ~~2,358,000~~ **6,337,349** megagrams (Mg). ~~with passive venting of the landfill gas~~ **A landfill gas collection system and flare for control of landfill gas emissions shall be installed as required under the requirements of 40 CFR 60.750 through 60.759, Subpart WWW;**
(b) solid waste dumping operations;
(c) unpaved landfill roadways;
(d) one (1) 440,000 gallon leachate surface impoundment for leachate storage, with potential VOC emissions of less than 5 tons per year;
(e) one (1) diesel on-road 15,000 gallon storage tank;
(f) one (1) 10,000 gallon diesel off-road storage tank, dispensing less than 3,500 gallons of diesel per day;

(g) one (1) 275 gallon garage furnace fuel oil storage tank, dispensing less than 3,500 gallons of fuel per day;
(h) one (1) 550 gallon hydraulic oil storage tank;
(i) one (1) 550 gallon motor oil storage tank;
(j) one (1) 1,000 gallon waste motor oil storage tank;
(k) one (1) 500 gallon waste motor oil furnace supply tank;
(l) one (1) 275 gallon transmission oil storage tank;
(m) three (3) propane storage tanks with maximum storage capacities of 300, 400, and 1,000 gallons, respectively;
(n) one (1) garage propane furnace, rated at 0.15 million British thermal units (MMBtu) per hour;
(o) one (1) office propane furnace, rated at 0.09 MMBtu per hour;
(p) one (1) garage fuel oil-fired furnace, rated at 0.134 MMBtu per hour;
(q) one (1) garage waste oil-fired furnace, rated at 0.196 MMBtu per hour;
(r) one (1) diesel-fired pressure washer, rated at 385 Btu per minute;
(s) one (1) gasoline-fired water pump, rated at 5 HP;
(t) one (1) diesel-fired water pump, rated at 50 HP;
(u) one (1) diesel-fired light plant, rated at 30 HP;
(v) maintenance cold cleaner degreasers, with total annual solvent usage of less than 145 gallons;
(w) maintenance drilling; ~~and~~
(x) maintenance light welding**;**
(y) one (1) non-hazardous industrial and commercial liquid waste solidification process, located in a portable solidification basin (roll-off box) for mixing liquid waste, solid waste, and mixing agents, with a maximum throughput of 1,667 gallons per hour of liquid waste, 65 tons per hour of solidified waste, and 50 tons per hour of mixing agent;
(z) mixing agent and solidified waste material handling operations; and
(aa) one (1) 772,000 gallon capacity leachate storage basin, identified as Leachate Storage Basin #2.

2. Since this source is now subject to the NSPS, 40 CFR 60.750 through 60.759, Subpart WWW and the potential to emit of any single HAP and a combination of HAPs is greater than 10 and 25 tons per year, respectively, this source will be subject to the requirements of 326 IAC 2-7 (Part 70 Permit Program) upon issuance of this permit. Therefore a new condition has been added to section B which requires the source to submit a Part 70 permit application within one (1) year of issuance of this permit when operation of the modified landfill and new equipment begins. The new condition B.5 reads as follows:

B.5 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source is required to apply for a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:

(a) It is a major source, as defined in 326 IAC 2-7-1(22); and

(b) It is a source in a source category designated by the United States Environmental Protection Agency (U.S. EPA) under 40 CFR 70.3 (Part 70 - Applicability).

Pursuant to 326 IAC 2-7-4, the source shall submit a Part 70 permit application to the OAQ within twelve (12) months after the source becomes subject to the Part 70 permit program. The source will be subject to the Part 70 permit program when operation of the modified landfill and new equipment listed in Section D.1 begins.

3. Section D.1 is revised to include the revised landfill description, to incorporate the requirements of 40 CFR 60.750 through 60.759, Subpart WWW, and to include the new emission units with applicable requirements. The revised section D.1 now reads as follows:

SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description
(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

(a) one (1) municipal solid waste sanitary landfill generating landfill gas, with a maximum design capacity of ~~2,358,000~~ **6,337,349** megagrams (Mg), ~~with passive venting of the landfill gas~~ **A landfill gas collection system and flare for control of landfill gas emissions shall be installed as required under the requirements of 40 CFR 60.750 through 60.759, Subpart WWW**;
(b) solid waste dumping operations; ~~and~~
(c) unpaved landfill roadways;
(y) one (1) non-hazardous industrial and commercial liquid waste solidification process, located in a portable solidification basin (roll-off box) for mixing liquid waste, solid waste, and mixing agents, with a maximum throughput of 1,667 gallons per hour of liquid waste, 65 tons per hour of solidified waste, and 50 tons per hour of mixing agent; and
(z) mixing agent and solidified waste material handling operations.

Emission Limitations and Standards

D.1.1 General Provisions Relating to NSPS [326 IAC 12-1][40 CFR Part 60, Subpart A]

The provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated by reference in 326 IAC 12-1, apply to the facility described in this section except when otherwise specified in 40 CFR Part 60, Subpart WWW.

D.1.2 Municipal Solid Waste Landfills Not Located in Clark, Floyd, Lake and Porter Counties [326 IAC 8-8.1]

The municipal solid waste landfill is subject to 326 IAC 8-8.1, which incorporates by reference the following provisions of 40 CFR 60, Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills: 40 CFR 60.751, 60.752, 60.753, 60.754, 60.755, 60.756, 60.757, 60.758 and 60.759.

D.1.~~1~~**3** Municipal Solid Waste Landfill NSPS [326 IAC 12] [40 CFR 60.752, Subpart WWW]

~~(a) If there is an increase in the permitted volume design capacity of the landfill by either horizontal or vertical expansion, then the landfill will become subject to Subpart WWW. Pursuant to 40 CFR 60.752(a), if the design capacity of the landfill is still less than 2.5 million megagrams (Mg) by mass, the Permittee will be required to submit an initial design capacity report within ninety (90) days after the date of the modification. Although not subject to this rule at the time, the Permittee submitted an initial design capacity report to IDEM, OAM on June 13, 1996.~~

~~(b) If the design capacity of this landfill is increased to or above 2.5 million Mg, the following shall apply:~~

~~(1) Pursuant to 40 CFR 60.752(a)(1), an amended design capacity report shall be submitted to the Office of Air Management (OAM), pursuant to 40 CFR 60.757(a)(3), providing notification of any increase in the design capacity of the landfill, within ninety (90) days of an increase in the maximum design capacity of the landfill to or above 2.5 million Mg.~~

~~(2) Pursuant to 40 CFR 60.752(a)(2), the landfill shall comply with the provision of 40 CFR 60.752(b).~~

(a) The municipal solid waste landfill has a design capacity greater than 2.5 million megagrams (Mg) and shall either comply with 40 CFR 60.752 (b)(2) or calculate the non methane organic compound (NMOC) emission rate for the landfill using the procedures specified in 40 CFR 60.754.

~~(3)~~**(b)** The source ~~shall be~~ **is** subject to 326 IAC 2-7 (Part 70 Permit Program) and shall apply for a Part 70 operating permit within twelve (12) months after this source becomes subject to Title V.

D.1.4 Operational Standards for Collection and Control Systems [40 CFR 60.753]

In order to comply with 40 CFR 60.752 (b)(2)(ii), when the calculated NMOC emission rate equals or exceeds 50 megagrams per year, the Permittee shall:

(a) Operate the collection system such that gas is collected from each area, cell, or group of cells in the municipal solid waste landfill in which solid waste has been in place for five years if active or 2 years or more if closed or at final grade.

(b) Operate the collection system with negative pressure at each wellhead except under the following conditions:

(1) Fire or increased well temperature. The Permittee shall record instances when positive pressure occurs in efforts to avoid a fire. These records shall be submitted with the annual reports as provided in 40 CFR 60.757(f)(1).

(2) Use of a geomembrane or synthetic cover. The Permittee shall develop acceptable pressure limits in the design plan.

(3) A decommissioned well. A well may experience a static positive pressure after shut down to accommodate for declining flows. All design changes shall be approved by the Office of Air Quality (OAQ).

(c) Operate each interior wellhead in the collection system with a landfill gas temperature less than 55EC and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent. The Permittee may establish a higher operating temperature, nitrogen, or oxygen value at a particular well. A higher operating value demonstration shall show supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

(1) The nitrogen level shall be determined using Method 3C, unless an alternative method is established as allowed by 40 CFR 60.752 (b)(2)(i).

(2) Unless an alternative test method is established as allowed by 40 CFR 60.752 (b)(2)(i), the oxygen shall be determined by an oxygen meter using Method 3A except that; the span shall be set so that the regulatory limit is between 20 and 50 percent of the span; a data recorder is not required; only two calibration gases are required, a zero and span, and ambient air may be used as the span; a calibration error check is not required; the allowable sample bias, zero drift, and calibration drift are ±10 percent.

(d) **Operate the collection system so that the methane concentration is less than 500 parts per million above background at the surface of the landfill. To determine if this level is exceeded, the Permittee shall conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at 30 meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover. The Permittee may establish an alternative traversing pattern that ensures equivalent coverage. A surface monitoring design plan shall be developed that includes a topographical map with the monitoring route and the rationale for any site-specific deviations from the 30 meter intervals. Areas with steep slopes or other dangerous areas may be excluded from the surface testing.**

(e) **Operate the system such that all collected gases are vented to a control system designed and operated in compliance with 40 CFR 60.752(b)(2)(iii). In the event the collection or control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within one hour.**

(f) **Operate the control system at all times when the collected gas is routed to the system.**

(g) **If monitoring demonstrates that the operational requirements in 40 CFR 60.753(b), (c), or (d) are not met, corrective action shall be taken as specified in 40 CFR 60.755(a)(3) through (5) or 40 CFR 60.755(c). If corrective actions are taken as specified in 40 CFR 60.755, the monitored exceedance is not a violation of the operational requirements in 40 CFR 60.753.**

D.1.2~~5~~ Particulate Matter (PM) [326 IAC 6-3-2(c)]

(a) The particulate matter (PM) emissions from the solid waste dumping operations shall not exceed 52.2~~4~~**62** pounds per hour, when operating at a maximum process weight rate of ~~220,000~~ **228,310.5** pounds per hour.

Interpolation and extrapolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 55.0\ P^{0.11} - 40$ where E = rate of emission in pounds per hour; and P = process weight rate in tons per hour

(b) **The particulate matter (PM) emissions from the mixing agent loading and unloading operations shall not exceed 44.58 pounds per hour, when operating at a maximum process weight rate of 100,000 pounds per hour.**

Interpolation and extrapolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 55.0\ P^{0.11} - 40$ where E = rate of emission in pounds per hour; and P = process weight rate in tons per hour

(c) **The particulate matter (PM) emissions from the solidified waste loading and unloading operations shall not exceed 47.05 pounds per hour, when each is operating at a maximum process weight rate of 130,000 pounds per hour.**

Interpolation and extrapolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 55.0\ P^{0.11} - 40$ **where E = rate of emission in pounds per hour; and P = process weight rate in tons per hour**

D.1.6 Volatile Organic Compounds (VOC) [326 IAC 8-1-6]

The throughput of liquid waste to the solidification process shall not exceed 6,240,000 gallons per twelve (12) consecutive month period, rolled on a monthly basis. The concentration of any single VOC shall not exceed 200 milligrams (mg) per liter. This will limit potential VOC emissions from the waste solidification process to less than 25 tons per year. Therefore, the requirements of 326 IAC 8-1-6 (New Facilities, General Reduction Requirements) do not apply.

D.1.7 Preventive Maintenance Plan [326 IAC 1-6-3]

A Preventive Maintenance Plan, in accordance with Section C - Preventive Maintenance Plan, of this permit, is required for the sanitary landfill and any control devices when the calculated NMOC emissions are greater than 50 megagrams per year.

Compliance Determination Requirements

~~D.1.3 Testing Requirements [326 IAC 2-1.1-11]~~

~~The Permittee is not required to test this emissions unit by this permit. However, IDEM may require compliance testing when necessary to determine if the emissions unit is in compliance. If testing is required by IDEM, compliance with the PM limit specified in Condition D.1.2 shall be determined by a performance test conducted in accordance with Section C - Performance Testing.~~

D.1.8 Testing Requirements [326 IAC 2-7-6(1),(6)] [40CFR 60.754]

(a) When the calculated NMOC emissions are greater than 50 megagrams per year, pursuant to 40 CFR 60.754(b):

After installation of a collection and control system in compliance with 40 CFR 60.755, the Permittee shall calculate the non methane organic compound (NMOC) emission rate for purposes of determining when the system can be removed using the following equation:

$M_{NMOC} = 1.89 \times 10^{-3}\ Q_{LFG}\ C_{NMOC}$
where,

M_{NMOC} = mass emission rate of NMOC, megagrams per year
Q_{LFG} = flow rate of landfill gas, cubic meters per minute
C_{NMOC} = NMOC concentration, parts per million by volume as hexane

(1) The flow rate of landfill gas, Q_{LFG}, shall be determined by measuring the total landfill gas flow rate at the common header pipe that leads to the control device using a gas flow measuring device calibrated according to the provisions of section 4 of Method 2E of appendix A of 40CFR 60.

(2) The average NMOC concentration, C_{NMOC}, shall be determined by collecting and analyzing landfill gas sampled from the common header pipe before the gas moving or condensate removal equipment using the procedures in Method 25C or Method 18 of appendix A of 40 CFR 60. If using Method 18 of appendix A of 40 CFR 60, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42). The sample location on the common header pipe shall be before any condensate removal or other gas refining units. The Permittee shall divide the NMOC concentration from Method 25C of appendix A of 40CFR 60 by six to convert from C_{NMOC} as carbon to C_{NMOC} as hexane.

(3) The Permittee may use another method to determine landfill gas flow rate and NMOC concentration if the method has been approved by the Office of Air Quality.

(b) Pursuant to 40CFR 60.754(d):

For the performance test required in 40 CFR 60.752(b)(2)(iii)(B), Method 25, 25C, or Method 18 of Appendix A of 40 CFR 60 must be used to determine compliance with the 98 weight-percent efficiency or the 20 ppmv outlet concentration level, unless another method to demonstrate compliance has been approved by the Office of Air Quality (OAQ) as provided by 40 CFR 60.752(b)(2)(i)(B). Method 3 or 3A shall be used to determine oxygen for correcting the NMOC concentration as hexane to 3 percent. In cases where the outlet concentration is less than 50 ppm NMOC as carbon (8 ppm NMOC as hexane), Method 25A should be used in place of Method 25. If using Method 18 of appendix A of this part, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42). The following equation shall be used to calculate efficiency:

Control Efficiency = $(NMOC_{in} - NMOC_{out})/ (NMOC_{in})$
where,
$NMOC_{in}$ = mass of NMOC entering the control device
$NMOC_{out}$ = mass of NMOC exiting control device

D.1.9 Landfill Gas

The landfill gas collection system and flare for landfill gas collection and control shall be in operation at all times when the collected gas is routed to the system and the content of the landfill gas is greater than 50 megagrams of NMOC per year.

Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.1.10 Monitoring [40 CFR 60.756]

Except as provided in 40 CFR 60.752(b)(2)(i)(B), when the calculated NMOC emission rate equals or exceeds 50 megagrams per year,

(a) The Permittee seeking to comply with 40 CFR 60.752(b)(2)(ii)(A) for an active gas collection shall install a sampling port and a thermometer, other temperature measuring device, or an access port for temperature measurements at each wellhead and:

(1) Measure the gauge pressure in the gas collection header on a monthly basis as provided in 40 CFR 60.755(a)(3);

(2) Monitor nitrogen or oxygen concentration in the landfill gas on a monthly basis as provided in 40 CFR 60.755(a)(5); and

(3) Monitor temperature of the landfill gas on a monthly basis as provided in 40 CFR 60.755(a)(5).

(b) The Permittee seeking to comply with 40 CFR 60.752(b)(2)(iii) using an enclosed combustor shall calibrate, maintain, and operate according to the manufacturer's specifications, the following equipment:

(1) A temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of ±1 percent of the temperature being measured expressed in degrees Celsius of ±0.5 EC, whichever is greater. A temperature monitoring device is not required for boilers or process heaters with design heat input capacity greater than 44 megawatts.

(2) A device that records flow to or bypass of the control device. The Permittee shall either; install, calibrate, and maintain a gas flow rate measuring device that shall record the flow to the control device at least every fifteen (15) minutes; or secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line.

(c) The Permittee seeking to comply with 40 CFR 60.752(b)(2)(iii) using an open flare shall install, calibrate, maintain, and operate according to the manufacturer's specifications the following equipment:

(1) Heat sensing device, such as an ultraviolet beam sensor or thermocouple, at the pilot light or the flame itself to indicate the continuous presence of a flame

(2) A device that records flow to or bypass of the flare.

The Permittee shall either install, calibrate, and maintain a gas flow rate measuring device that shall record the flow to the control device at least every fifteen minutes; or secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure of the seal or closure mechanism shall be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line.

(d) The Permittee seeking to comply with 40 CFR 60.752(b)(2)(iii) using a device other than an open flare or an enclosed combustor shall provide information satisfactory to the Office of Air Quality (OAQ) as provided in 40 CFR 60.752(b)(2)(i)(B) describing the operation of the control device, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The Office of Air Quality (OAQ) shall review the information and either approve it, or request that additional information be submitted. The Office of Air Quality (OAQ) may specify additional monitoring procedures.

(e) The Permittee seeking to install a collection system that does not meet the specifications in 40 CFR 60.759 or seeking to monitor alternative parameters to those required by 40 CFR 60.753 through 40 CFR 60.756 shall provide information satisfactory to the Office of Air Quality (OAQ) as provided in 40 CFR 60.752(b)(2)(i)(B) and (C) describing the design and operation of the collection system, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The Office of Air Quality (OAQ) may specify additional appropriate monitoring procedures.

(f) The Permittee seeking to demonstrate compliance with 40 CFR 60.755(c), shall monitor surface concentrations of methane according to the instrument specifications and procedures provided in 40 CFR 60.755(d). Any closed landfill that has no monitored exceedances of the operational standard in three consecutive quarterly monitoring periods may skip to annual monitoring. Any methane reading of 500 ppm or more above background detected during the annual monitoring returns the frequency for that landfill to quarterly monitoring.

D.1.11 Compliance Provisions [40 CFR 60.755]

(a) Except as provided in 40 CFR 60.752(b)(2)(i)(B), when the calculated NMOC emission rate equals or exceeds 50 megagrams per year, the specified methods below shall be used to determine whether the gas collection system is in compliance with 40 CFR 60.752(b)(2)(ii).

(1) For the purpose of calculating the maximum expected gas generation flow rate from the landfill to determine compliance with 40 CFR 60.752(b)(2)(ii)(A)(1), one of the following equations shall be used. The k and L_o kinetic factors should be those published in the most recent Compilation of Air Pollution Emission Factors (AP-42) or other site-specific values demonstrated to be appropriate and approved by the Office of Air Quality (OAQ). If k has been determine as specified in 40 CFR 60.754(a)(4), the value of k determined from the test shall be used. A value of no more than 15 years shall be used for the intended use period of the gas mover equipment. The active life of the landfill is the age of the landfill plus the estimated number of years until closure.

For sites with unknown year-to-year solid waste acceptance rate:

$$Q_m = 2L_o R (e^{-kc} - e^{-kt})$$

where,
Q_m = maximum expected gas generation flow rate, cubic meters per year
L_o = methane generation potential, cubic meters per megagram solid waste
R = average annual acceptance rate, megagrams per year
k = methane generation rate constant, $year^{-1}$
t = age of the landfill at equipment installation plus the time the owner or operator intends to use the gas mover equipment or active life of the landfill, whichever is less. If the equipment is installed after closure, t is the age of the landfill at installation, years.
c = time since closure, years (for an active landfill c = 0 and $e^{-kc} = 1$)

For sites with known year-to-year solid waste acceptance rate:

$$Q_M = \sum_{i=1}^{n} 2 k L_O M_i (e^{-kt_i})$$

where,
Q_M = maximum expected gas generation flow rate, cubic meters per year
k = methane generation rate constant, $year^{-1}$

L_o = methane generation potential, cubic meters per megagram solid waste
M_i = mass of solid waste in the i^{th} section, megagrams
t_i = age of the i^{th} section, years

If a collection and control system has been installed, actual flow data may be used to project the maximum expected gas generation flow rate instead of, or in conjunction with, the equations in 40 CFR 60.755(a)(1)(i) and (ii). If the landfill is still accepting waste, the actual measured flow data will not equal the maximum expected gas generation rate, so calculations using the equations in 40 CFR 60.755(a)(1)(i) or (ii) or other methods shall be used to predict the maximum expected gas generation rate over the intended period of use of the gas control system equipment.

(2) For the purposes of determining sufficient density of gas collector for compliance with 40 CFR 60.752 (b)(2)(ii)(A)(2), the Permittee shall design a system of vertical wells, horizontal collectors, or other collection devices, satisfactory to the Office of Air Quality (OAQ), capable of controlling and extracting gas from all portions of the landfill sufficient to meet all operational and performance standards.

(3) For the purpose of demonstrating whether the gas collection system flow rate is sufficient to determine compliance with 40 CFR 60.752(b)(2)(ii)(A)(3), the Permittee shall measure gauge pressure in the gas collection header at each individual well, monthly. If a positive pressure exists, action shall be initiated to correct the exceedance within five (5) calendar days, except for the three conditions allowed under 40 CFR 60.753(b). If negative pressure cannot be achieved without excess air infiltration within fifteen (15) calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial measurement of positive pressure. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the Office of Air Quality for approval.

(4) The Permittee is not required to expand the system as required in 40 CFR 60.755(a)(3) during the first 180 days after gas collection system start-up.

(5) For the purpose of identifying whether excess air infiltration into the landfill is occurring, the Permittee shall monitor each well monthly for temperature and nitrogen or oxygen as provided in 40 CFR 60.753(c). If a well exceeds one of these operating parameters, action shall be initiated to correct the exceedance within five (5) calendar days. If correction of the exceedance cannot be achieved within fifteen (15) calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial exceedance. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the Office of Air Quality for approval.

(6) If the Permittee seeks to demonstrate compliance with 40 CFR 60.752(b)(2)(ii)(A)(4) through the use of a collection system not conforming to the specifications provided in 40 CFR 60.759 shall provide information satisfactory to the Office of Air Quality (OAQ) as specified in 40 CFR 60.752 (b)(2)(i)(C) demonstrating that off-site migration is being controlled.

(b) For purposes of compliance with 40 CFR 60.753(a), the Permittee shall place each well or design component of a controlled landfill as specified in the approved design plan as provided in 40 CFR 60.752(b)(2)(i). Each well shall be installed no later than 60 days after the date on which the initial solid waste has been in place for a period of five (5) years or more if active or two (2) years or more if closed or at final grade.

(c) The following procedures shall be used for compliance with the surface methane operational standard as provided in 40 CFR 60.753 (d):

(1) After installation of the collection system, the Permittee shall monitor surface concentrations of methane along the entire perimeter of the collection area and along a pattern that traverses the landfill at 30 meter intervals (or a site-specific established spacing) for each collection area on a quarterly basis using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specifications provided in 40 CFR 60.755(d).

(2) The background concentration shall be determined by moving the probe inlet upwind and downwind outside the boundary of the landfill at a distance of at least 30 meters from perimeter wells.

(3) Surface emission monitoring shall be performed in accordance with section 4.3.1 of Method 21 of appendix A of 40 CFR 60, except that the probe inlet shall be placed within five (5) to ten (10) centimeters of the ground. Monitoring shall be performed during typical meteorological conditions.

(4) Any reading of 500 parts per million or more above background at any location shall be recorded as a monitored exceedance and the actions specified in 40 CFR 60.755(c)(4)(i) through (v) should be taken. As long as the specified actions are taken, the exceedance is not a violation of the operational requirements of 40 CFR 60.753(d).

The location of each monitored exceedance shall be marked and the location recorded.

Cover maintenance or adjustments to the vacuum of the adjacent wells to increase the gas collection in the vicinity of each exceedance shall be made and the location shall be re-monitored within ten (10) calendar days of detecting the exceedance.

If the re-monitoring of the location shows a second exceedance, additional corrective action shall be taken and the location shall be monitored again within ten (10) days of the second exceedance. If re-monitoring shows a third exceedance for the same location, the action specified in paragraph 40 CFR 60.755(c)(4)(v) shall be taken, and no further monitoring of that location is required until the action specified in 40 CFR 60.755(c)(4)(v) has been taken.

Any location that initially showed an exceedance but has a methane concentration less than 500 ppm methane above background at the 10-day re-monitoring specified in 40 CFR 60.755(c)(4)(ii) or (iii) shall be re-monitored one (1) month from the initial exceedance. If the one (1)-month re-monitoring shows a concentration less than 500 parts per million above background, no further monitoring of that location is required until the next quarterly monitoring period. If the one (1)-month remonitoring shows an exceedance, the actions specified in 40 CFR 60.755(c)(4)(iii) or (v) shall be taken.

For any location where monitored methane concentration equals or exceeds 500 parts per million above background three times within a quarterly period, a new well or other collection device shall be installed within 120 calendar days of the initial exceedance. An alternative remedy to the exceedance, such as upgrading the blower, header pipes or control device, and a corresponding timeline for installation may be submitted to the Office of Air Quality (OAQ) for approval.

(5) The Permittee shall implement a program to monitor for cover integrity and implement cover repairs as necessary on a monthly basis.

(d) The Permittee seeking to comply with the provisions of 40 CFR 60.755(c) shall comply with the following instrumentation specifications and procedures for surface emission monitoring devices:

(1) The portable analyzer shall meet the instrument specifications provided in section 3 of Method 21 of appendix A of 40 CFR 60, except the "methane" shall replace all references to volatile organic compound (VOC).

(2) The calibration gas shall be methane, diluted to a nominal concentration of 500 parts per million in air.

(3) To meet the performance evaluation requirements in section 3.1.3 of Method 21 of appendix A of 40 CFR 60, the instrument evaluation procedures of section 4.4 of Method 21 of appendix A of 40 CFR 60 shall be used.

(4) The calibration procedures provided in section 4.2 of Method 21 of appendix A of 40 CFR 60 shall be followed immediately before commencing a surface monitoring survey.

(e) The provisions of 40 CFR 60.755 shall apply at all times, except during periods of start-up, shutdown, or malfunction, provided that the duration of start-up, shutdown, or malfunction, shall not exceed five (5) days for collection systems and shall not exceed one (1) hour for treatment or control devices.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)]

D.1.12 Non Methane Organic Compound (NMOC) Rate Calculation [40 CFR 60.754]

Pursuant to 40 CFR 60.754 the Permittee shall:

(a) Calculate the non methane organic compound (NMOC) emission rate using either the equation provided in 40 CFR 60.754(a)(1)(i) or the equation provided in 40 CFR 60.754(a)(1)(ii). Both equations may be used if the actual year-to-year solid waste acceptance rate is known, as specified in 40 CFR 60.754(a)(1)(i), for part of the life of the landfill and the actual year-to-year solid waste acceptance rate is unknown, as specified in paragraph 40 CFR 60.754(a)(1)(ii), for part of the life of the landfill. The values to be used in both equations are 0.05 per year for k, 170 cubic meters per megagram for L_o, and 4,000 parts per million by volume as hexane for the C_{NMOC}. For landfills located in geographical areas with a thirty year annual average precipitation of less than 25 inches, as measured at the nearest representative official meteorologic site, the k value to be used is 0.02 per year.

The following equation shall be used if the actual year-to-year solid waste acceptance rate is known:

$$M_{NMOC} = \sum_{i=1}^{n} 2\ k\ L_O\ M_i\ (e^{-kt_i})\ (C_{NMOC})\ (3.6x10^{-9})$$

where,

M_{NMOC}= Total NMOC emission rate from the landfill, megagrams per year
k = methane generation rate constant, $year^{-1}$
L_o= methane generation potential, cubic meters per megagram solid waste
M_i= mass of solid waste in the i^{th} section, megagrams
t_i= age of the i^{th} section, years
C_{NMOC}= concentration of NMOC, parts per million by volume as hexane
3.6×10^{-9}= conversion factor

The mass of the nondegradable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating the value for M_i if documentation of the nature and amount of such wastes is maintained.

The following equation shall be used if the actual year-to-year solid waste acceptance rate is unknown:

$$M_{NMOC} = 2\ L_o\ R\ (e^{-kc} - e^{-kt})(C_{NMOC})(3.6 \times 10^{-9})$$

where,

M_{NMOC} = mass emission rate of NMOC, megagrams per year
L_o = methane generation potential, cubic meters per megagram solid waste
R = average annual acceptance rate, megagrams per year
k = methane generation rate constant, $year^{-1}$
t = age of landfill, years
C_{NMOC} = concentration of NMOC, parts per million by volume as hexane
c = time since closure, years. For active landfill c = 0 and $e^{-kc} = 1$
3.6×10^{-9} = conversion factor

The mass of the nondegradable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating the value of R, if documentation of the nature and amount of such wastes is maintained.

(b) Tier 1. The Permittee shall compare the calculated NMOC mass emission rate to the standard of 50 megagrams per year.

If the NMOC emission rate calculated in 40 CFR 60.754(a)(1) is less than 50 megagrams per year, then the landfill owner shall submit an emission rate report as provided in 40 CFR 60.757(b)(1), and shall recalculate the NMOC mass emission rate annually as required under 40 CFR 60.752(b)(1). If the calculated NMOC emission rate is equal to or greater than 50 megagrams per year, then the Permittee shall either comply with 40 CFR 60.752(b)(2), or determine a site-specific NMOC concentration and recalculate the NMOC emission rate using the procedures provided in 40 CFR 60.754(a)(3).

Tier 2. The Permittee shall determine the NMOC concentration using the following sampling procedure. The Permittee shall install at least two sample probes per hectare of landfill surface that has retained waste for at least 2 years. If the landfill is larger that 25 hectares in area, only 50 samples are required. The sample probes should be located to avoid known areas of nondegradable solid waste. The Permittee shall collect and analyze one sample of landfill gas from each probe to determine the NMOC concentration using Method 25 or 25C of appendix A of 40 CFR 60. Method 18 of Appendix A of 40 CFR 60 may be used to analyze the samples collected by the Method 25 or 25C sampling procedure. If using Method 18 of appendix A of 40 CFR 60, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42), minus carbon monoxide, hydrogen sulfide, and mercury. If composite sampling is used, equal volumes shall be taken from each sample probe. If more than the required number of samples are taken, all samples shall be used in analysis. The Permittee shall divide the NMOC concentration from Method 25C of appendix A by six to convert from C_{NMOC} as carbon to C_{NMOC} as hexane.

The Permittee shall recalculate the NMOC mass emission rate using the equations provided in 40 CFR 60.754(a)(1)(i) and (a)(1)(ii) and using the average NMOC concentration from the collected samples instead of the default value in the equation provided in 40 CFR 60.754(a)(1).

If the resulting mass emission rate calculated using the site-specific NMOC concentration is equal to or greater that 50 megagrams per year, then the Permittee shall either comply with 40 CFR 60.752(b)(2), or determine the site-specific methane generation rate constant and recalculate the NMOC emission rate using the site-specific methane generation rate using the procedure specified in 40 CFR 60.754(a)(4).

If the resulting NMOC mass emission rate is less than 50 megagrams per year, the Permittee shall submit a periodic estimate of the emission rate report as provided in 40 CFR 60.757(b)(1) and retest the site-specific NMOC concentration every five (5) years using the methods in 40 CFR 60.754(a)(3).

Tier 3. The site-specific methane generation rate constant shall be determined using the procedures provided in Method 2E of appendix A of 40 CFR 60. The Permittee shall estimate the NMOC mass emission rate using equations in 40 CFR 60.754(a)(1)(i) or (a)(1)(ii) and using a site-specific methane generation rate constant k, and the site-specific NMOC concentration as determined in 40 CFR 60.754(a)(3) instead of the default values provided in 40 CFR 60.754(a)(1). The Permittee shall compare the resulting NMOC mass emission rate to the standard of 50 megagrams per year.

If the NMOC mass emission rate as calculated using the site-specific methane generation rate and concentration of NMOC is equal to or greater than 50 megagrams per year, the Permittee shall comply with 40 CFR 60.752(b)(2).

If the NMOC mass emission rate is less than 50 megagrams per year, then the Permittee shall submit a periodic emission rate report as provided in 40 CFR 60.757(b)(1) and shall recalculate the NMOC mass emission rate annually, as provided in 40 CFR 60.757(b)(1) using the equations in 40 CFR 60.754(a)(1) and using the site-specific methane generation rate constant and NMOC concentration obtained in 40 CFR 60.754(a)(3). The calculation of the methane generation rate constant is performed only once, and the value obtained from this test shall be used in all subsequent annual NMOC emission rate calculations.

The Permittee may use other methods to determine the NMOC concentration or a site-specific k as an alternative to the methods required in 40 CFR 60.754(a)(3) and (a)(4) if the method has been approved by the Office of Air Quality.

(c) When calculating emissions for PSD purposes, the owner or operator of each municipal solid waste landfill subject to 40 CFR 60.754 shall estimate the NMOC emission rate for comparison to the PSD major source and significance levels in 40 CFR 51.166 or 40 CFR 52.21 using AP-42 or other approved measurement procedures. If a collection system, which complies with the provisions of 40 CFR 60.752(b)(2) is already installed, the Permittee shall estimate the NMOC emission rate using the procedures provided in 40 CFR 60.754(b).

D.1.13 Reporting Requirements [40 CFR 60.757]

Pursuant to 40 CFR 60.757, except as provided in 40 CFR 60.752(b)(2)(i)(B), the Permittee shall:

(a) Submit an initial design capacity report to the Office of Air Quality (OAQ) no later than 90 days after the date of commenced modification for this landfill that commenced modification on or after March 12, 1996. An amended design capacity report shall be submitted to the Office of Air Quality (OAQ) providing notification of any increase in the design capacity of the landfill. Although not subject to this rule at the time, the Permittee submitted an initial design capacity report to IDEM, OAQ on June 13, 1996. An amended design capacity report was submitted on August 10, 2001 to provide notice of this increase in the design capacity.

(b) Submit a non methane organic compound (NMOC) emission rate report to the Office of Air Quality initially and annually thereafter, except as provided for in 40 CFR 60.757(b)(1)(ii) or (b)(3). The Office of Air Quality (OAQ) may request such additional information as may be necessary to verify the reported NMOC emission rate. The report should contain an annual or 5-year estimate of the non methane organic compound (NMOC) emission rate using the formula and procedures provided in 40 CFR 60.754 (a) or (b), as applicable. The initial NMOC emission rate report may be combined with the initial design capacity report required in 40 CFR

60.757(a) and shall be submitted no later than indicated in paragraphs 40 CFR 60.757(b)(1)(i)(A) and (B): June 10, 1996, for landfills that commenced construction, modification, or reconstruction on or after May 30, 1991, but before March 12, 1996, or ninety days after the date of commenced construction, modification, or reconstruction for landfills that commence construction, modification, or reconstruction on or after March 12, 1996. Subsequent NMOC emission rate reports shall be submitted annually thereafter, except as provided in 40 CFR 60.757(b)(1)(ii) and (b)(3). If the estimated NMOC emission rate as reported in the annual report to the Office of Air Quality (OAQ) is less than 50 megagrams per year in each of the next five (5) consecutive years, the Permittee may elect to submit an estimate of the NMOC emission rate for the next five (5) year period in lieu of the annual report. This estimate shall include the current amount of solid waste-in-place and the estimated waste acceptance rate for each year of the five (5) years for which an NMOC emission rate is estimated. All data and calculations upon which this estimate is based shall be provided to the Office of Air Quality (OAQ). This estimate shall be revised at least once every five (5) years. If the actual waste acceptance rate exceeds the estimated waste acceptance rate in any year reported in the five (5) year estimate, a revised five (5) year estimate shall be submitted to the Office of Air Quality. The revised estimate shall cover the five (5) year period beginning with the year in which the actual waste acceptance rate exceeded the estimated waste acceptance rate. The NMOC emission rate report shall include all the data, calculations, sample reports, and measurements used to estimate the annual or five (5) year emission rate. The Permittee is exempted from the requirements of 40 CFR 60.757(b)(1) and (2) after the installation of a collection and control system in compliance with 40 CFR 60.752 (b)(2), during such time as the system is in operation and in compliance with 40 CFR 60.753 and 60.755.

(c) Submit a collection and control system design plan to the Office of Air Quality (OAQ) within one (1) year of the first non methane organic compound (NMOC) emission rate report, required under 40 CFR 60.757(b), in which NMOC emission rate exceeds 50 megagrams (Mg) per year; except if the Permittee elects to recalculate the NMOC emission rate after Tier 2 sampling and analysis as provided in 40 CFR 60.754(a)(3) and the resulting rate is less than 50 megagrams per year, annual periodic reporting shall be resumed, using the Tier 2 determined site-specific NMOC concentration, until the calculated emission rate is equal to or greater than 50 megagrams per year or the landfill is closed. The revised NMOC emission rate report, with the recalculated emission rate based on NMOC sampling and analysis, shall be submitted within 180 days of the first calculated exceedance of 50 megagrams per year. If the Permittee elects to recalculate the NMOC emission rate after determining a site-specific methane generation rate constant (k), as provided in Tier 3 in 40 CFR 60.754(a)(4), and the resulting NMOC emission rate is less than 50 megagrams per year, annual periodic reporting shall be resumed. The resulting site-specific methane generation rate constant (k) shall be used in the emission rate calculation until such time as the emissions rate calculation results in an exceedance. The revised NMOC emission rate report based on the provisions of 40 CFR 60.754(a)(4) and the resulting site-specific methane generation rate constant (k) shall be submitted to the Office of Air Quality (OAQ) within one (1) year of the first calculated emission rate exceeding 50 megagrams per year.

(d) Submit a closure report to the Office of Air Quality (OAQ) within thirty days of waste acceptance cessation. The Office of Air Quality (OAQ) may request additional information as may be necessary to verify that permanent closure has taken place in accordance with the requirements of 40 CFR 258.60. If a closure report has been submitted to the Office of Air Quality (OAQ), no additional wastes may be placed into the landfill without filing a notification of modification as described under 40 CFR 60.7(a)(4).

(e) Submit an equipment removal report to the Office of Air Quality (OAQ) thirty (30) days prior to removal or cessation of operation of the control equipment. The equipment removal report shall contain all of the following items: a copy of the closure report submitted in accordance with 40 CFR 60.757(d), a copy of the initial performance test report demonstrating that the fifteen (15) year minimum control period has expired, and dated copies of three (3) successive NMOC emission rate reports demonstrating that the landfill is no longer producing 50 megagrams or greater of NMOC per year. The Office of Air Quality (OAQ) may request such additional information as may be necessary to verify that all of the conditions for removal in 40 CFR 60.752(b)(2)(v) have been met.

(f) Annual reports of the following recorded information. The initial annual report shall be submitted within 180 days of installation and start-up of the collection and control system when the calculated NMOC emission rate equals or exceeds 50 megagrams per year, and shall include the initial performance test report required under 40 CFR 60.8. For enclosed combustion devices and flares, reportable exceedances are defined under 40 CFR 60.758(c).

(1) Value and length of time for exceedance of applicable parameters monitored under 40 CFR 60.756(a), (b), (c), and (d).

(2) Description and duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow as specified under 40 CFR 60.756.

(3) Description and duration of all periods when the control device was not operating for a period exceeding one (1) hour and length of time the control device was not operating.

(4) All periods when the collection system was not operating in excess of five (5) days.

(5) Location of each exceedance of the 500 parts per million methane concentration as provided in 40 CFR 60.753(d) and the concentration recorded at each location for which an exceedance was recorded in the previous month.

(6) Date of installation and the location of each well or collection system expansion added pursuant to 40 CFR 60.755(a)(3), (b), and (c)(4).

(g) The Permittee seeking to comply with 40 CFR 60.752(b)(2)(iii), when the calculated NMOC emission rate equals or exceeds 50 megagrams per year, shall include the following information with the initial performance test report required under 40 CFR 60.8:

(1) A diagram of the collection system showing collection system positioning including all wells, horizontal collectors, surface collectors, or other gas extraction devices, including the locations of any areas excluded from collection and the proposed sites for the future collection system expansion.

(2) The data upon which the sufficient density of wells, horizontal collectors, surface collectors, or other gas extraction devices and the gas mover equipment sizing are based.

(3) The documentation of the presence of asbestos or nondegradable material for each area from which collection wells have been excluded based on the presence of asbestos or nondegradable material.

(4) The sum of the gas generation flow rates for all areas from which collection wells have been excluded based on nonproductivity and the calculations of gas generation flow rate for each excluded area.

(5) The provisions for increasing gas mover equipment capacity with increased gas generation flow rate, if the present gas mover equipment is inadequate to move the maximum flow rate expected over the life of the landfill

(6) The provision for the control of off-site migration.

(h) A summary of the above information shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit.

D.1.14 Record Keeping Requirements [326 IAC 12] [40 CFR 60.758]

Pursuant to 40 CFR 60.758:

(a) Except as provided in 40 CFR 60.752(b)(2)(i)(B), the Permittee subject to 40 CFR 60.752(b) shall keep for at least 5 years up-to-date, readily accessible, on-site records of the design capacity report which triggered 40 CFR 60.752(b), the current amount of solid waste in-place, and the year-by-year waste acceptance rate. Off-site records may be maintained if they are retrievable within four (4) hours. Either paper copy or electronic formats are acceptable.

(b) Except as provided in 40 CFR 60.752(b)(2)(i)(B), when the calculated NMOC emission rate equals or exceeds 50 megagrams per year, the Permittee of a controlled landfill shall keep up-to-date, readily accessible records for the life of the control equipment of the data listed in (1) through (4) below as measured during the initial performance test or compliance determination. Records of subsequent tests or monitoring shall be maintained for a minimum of five (5) years. Records of control device vendor specifications shall be maintained until removal.

(1) Where the Permittee subject to the provisions of 40 CFR 60.758 seeks to demonstrate compliance with 40 CFR 60.752(b)(2)(ii):

The maximum expected gas generation flow rate as calculated in 40 CFR 60.755(a)(1). The Permittee may use another method to determine the maximum gas generation flow rate, if the method has been approved by the Office of Air Quality (OAQ).

The density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in 40 CFR 60.759(a)(1).

(2) Where the Permittee subject to the provisions of 40 CFR 60.758 seeks to demonstrate compliance with 40 CFR 60.752(b)(2)(iii) through use of an enclosed combustion device other than a boiler or process heater with a design heat input capacity greater than 44 megawatts:

The average combustion temperature measured at least every fifteen (15) minutes and averaged over the same time period of the performance test.

The percent reduction of NMOC determined as specified in 40 CFR 60.752(b)(2)(iii)(B) achieved by the control device.

(3) Where the Permittee subject to the provisions of 40 CFR 60.758 seeks to demonstrate compliance with 40 CFR 60.752(b)(2)(iii)(B)(1) through use of a boiler or process heater of any size: a description of the location at which the collected gas vent stream is introduced into the boiler or process heater over the same time period of the performance testing.

(4) Where the Permittee subject to the provisions of 40 CFR 60.758 seeks to demonstrate compliance with 40 CFR 60.752(b)(2)(iii)(A) through use of an open flare, the flare type (i.e., steam-assisted, air -assisted, or nonassisted), all visible emission readings, heat content determination, flow rate or bypass flow rate measurements, and exit velocity determinations made during the performance test as specified in 40 CFR 60.18; continuous records of the flare pilot flame or flare flame monitoring and records of all periods of operations during which the pilot flame of the flare flame is absent.

(c) Except as provided in 40 CFR 60.752(b)(2)(i)(B), when the calculated NMOC emission rate equals or exceeds 50 megagrams per year, the Permittee of a controlled landfill subject to the provisions of this subpart shall keep for 5 years up-to-date, readily accessible continuous records of the equipment operating parameters specified to be monitored in 40 CFR 60.756 as well as up-to-date, readily accessible records for periods of operation during which the parameter boundaries established during the most recent performance test are exceeded.

(1) The following constitute exceedances that shall be recorded and reported under 40 CFR 60.757(f):

For enclosed combustors except for boilers and process heaters with design heat input capacity of 44 megawatts (150 million British thermal unit per hour) or greater, all 3-hour periods of operation during which the average combustion temperature was more than 28EC below the average combustion temperature during the most recent performance test at which compliance with 40 CFR 60.752(b)(2)(iii) was determined.

For boilers or process heaters, whenever there is a change in the location at which the vent stream is introduced into the flame zone as required under 40 CFR 60.758(b)(3)(i).

(2) The Permittee subject to 40 CFR 60.758 shall keep up-to-date, readily accessible continuous records of the indication of flow to the control device or the indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines, specified under 40 CFR 60.756.

(3) The Permittee subject to the provisions of 40 CFR 60.758 who uses a boiler or process heater with a design heat input capacity of 44 megawatts or greater to comply with 40 CFR 60.752(b)(2)(iii) shall keep an up-to-date, readily accessible record of all periods of operation of the boiler or process heater. (Examples of such records could include records of steam use, fuel use, or monitoring data collected pursuant to other State, local, Tribal or Federal regulatory requirements.)

(4) The Permittee seeking to comply with the provisions of 40 CFR 60.758 by use of an open flare shall keep up-to-date, readily accessible continuous records of the flame or flare pilot flame monitoring specified under 40 CFR 60.756(c), and up-to-date, readily accessible records of all periods of operation in which the flame or flare pilot flame is absent.

(d) Except as provided in 40 CFR 60.752(b)(2)(i)(B), when the calculated NMOC emission rate equals or exceeds 50 megagrams per year, the Permittee subject to the provisions of this subpart shall keep for the life of the collection system an up-to-date, readily accessible plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector.

(1) The Permittee subject to the provisions of 40 CFR 60.758 shall keep up-to-date, readily accessible records of the installation date and location of all newly installed collectors as specified in 40 CFR 60.755 (b).

(2) The Permittee subject to the provisions of 40 CFR 60.758 shall keep readily accessible documentation of the nature, date of deposition, amount, and location of asbestos-containing or nondegradable waste excluded from collection as provided in 40 CFR 60.759 (a)(3)(i) as well as any non-productive areas excluded from collection as provided in 40 CFR 60.759 (a)(3)(ii).

(e) Except as provided in 40 CFR 60.752(b)(2)(i)(B), when the calculated NMOC emission rate equals or exceeds 50 megagrams per year, the Permittee subject to the provisions of this subpart shall keep for at least 5 years up-to-date, readily accessible records of all collection and control system exceedances of the operational standards in 40 CFR 60.753, the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance.

D.1.15 Record Keeping Requirements

(a) To document compliance with Condition D.1.6, the Permittee shall maintain records of the throughput of liquid waste, in gallons, to the waste solidification process. The records shall be taken monthly and shall be complete and sufficient to establish compliance with the VOC emission limit established in Condition D.1.6.

(b) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.1.16 Reporting Requirements

A quarterly summary of the information to document compliance with Condition D.1.6 shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

4. A quarterly report form has been added to the permit for the liquid waste throughput limit for the waste solidification process to limit VOC emissions. The new form is shown on the next page.

5. To summarize the reporting requirements for this source, the following table is added to this Technical Support Document to provide a quick reference for when reports are due.

Reporting Requirement	Due Date
Initial design capacity report	Source submitted an initial design capacity report to IDEM, OAQ on June 13, 1996. An amended design capacity report was submitted on August 10, 2001.
NMOC emission rate report	Initially, 90 days after landfill is modified. Then annually after that.
Collection and control system design plan	Submit within one (1) year of the first NMOC emission rate report, required under 40 CFR 60.757(b), in which NMOC emission rate exceeds 50 megagrams (Mg) per year, except if the Permittee elects to recalculate the NMOC emission rate after Tier 2 sampling and analysis as provided in 40 CFR 60.754(a)(3) and the resulting rate is less than 50 Mg per year, annual periodic reporting shall be resumed, using the Tier 2 determined site-specific NMOC concentration, until the calculated emission rate is equal to or greater than 50 megagrams per year or the landfill is closed.
Closure report	Submit within thirty days of waste acceptance cessation.
Equipment removal report	Submit thirty (30) days prior to removal or cessation of operation of the control equipment.
Annual report of recorded information required in 40 CFR 60.757(f)(1) through (6).	The initial annual report shall be submitted within 180 days of installation and start-up of the collection and control system when the calculated NMOC emission rate equals or exceeds 50 megagrams per year, and shall include the initial performance test report required under 40 CFR 60.8.
Quarterly report for waste solidification process	Within 30 days after the end of the quarter being reported.

Conclusion

The operation of this municipal solid waste sanitary landfill shall be subject to the conditions of the attached proposed MSOP Permit Revision No. 055-15317-00036.

Indiana Department of Environmental Management
Office of Air Quality
Compliance Data Section

Quarterly Report

Company Name: Rumpke of Indiana, LLC - Worthington Sanitary Landfill
Location: County Road 500, Worthington, Indiana 46176
Permit No.: MSOP 055-11614-00036
Source: Waste solidification process
Pollutant: VOC
Limit: The throughput of liquid waste to the waste solidification process shall not exceed 6,240,000 gallons per twelve (12) consecutive month period, rolled on a monthly basis.

YEAR: _____

Month	Column 1	Column 2	Column 1 + Column 2
	Liquid Waste Throughput This Month (gallons)	Liquid Waste Throughput Previous 11 Months (gallons)	12 Month Total Liquid Waste Throughput (gallons)

9 No deviation occurred in this quarter.

9 Deviation/s occurred in this quarter.
Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

Attach a signed certification to complete this report.

Appendix A: Emission Calculations Summary

Company Name: Rumpke of Indiana, LLC
Address City IN Zip: County Road 500, Worthington, Indiana 46176
Permit Revision No.: 055-15317
Plt ID: 055-00036
Reviewer: Trish Earls
Date: December 20, 2001

Potential Emissions (tons/year)

	Emissions Generating Activity						
Pollutant	Solid Waste Dumping and Unpaved Roadways	Sanitary Landfill	Combustion	Flare	Solidification Process Material Storage & Handling	Waste Solidification Process & Leachate Storage Basin	**TOTAL**
PM*	403.60	0.00	1.29	5.22	120.81	0.00	530.92
PM10	85.24	0.00	1.22	5.22	60.12	0.00	151.80
SO2	0.00	0.00	1.53	4.79	0.00	0.00	6.32
NOx	0.00	0.00	11.28	18.98	0.00	0.00	30.26
VOC	0.00	38.40	1.36	0.65	0.00	32.16	72.57
CO	0.00	0.00	11.98	63.26	0.00	0.00	75.24
total HAPs**	0.00	20.32	negl.	8.92	0.00	31.86	61.10
worst case single HAP***	0.00	6.91	negl.	7.38	0.00	12.19	12.19

Total emissions based on rated capacity at 8,760 hours/year.
Emissions from Leachate Storage Basin were estimated using the USEPA WATER9 model.

Controlled Emissions (tons/year)

	Emissions Generating Activity						
Pollutant	Solid Waste Dumping and Unpaved Roadways	Sanitary Landfill	Combustion	Flare	Solidification Process Material Storage & Handling	Waste Solidification Process & Leachate Storage Basin	**TOTAL**
PM*	201.88	0.00	1.29	5.22	15.72	0.00	224.11
PM10	42.66	0.00	1.22	5.22	7.58	0.00	56.68
SO2	0.00	0.00	1.53	4.79	0.00	0.00	6.32
NOx	0.00	0.00	11.28	18.98	0.00	0.00	30.26
VOC	0.00	18.12	1.36	0.65	0.00	13.74	33.87
CO	0.00	0.00	11.98	63.26	0.00	0.00	75.24
total HAPs**	0.00	9.59	negl.	8.92	0.00	13.61	32.12
worst case single HAP***	0.00	3.26	negl.	7.38	0.00	5.21	7.38

Unpaved roadway emissions are controlled by watering with a 50% control efficiency.

Appendix A: Emission Calculations
VOC Emissions

Company Name: Rumpke of Indiana, LLC
Address City IN Zip: County Road 500, Worthington, Indiana 46176
Permit Revision No.: 055-15317
Plt ID: 055-00036
Reviewer: Trish Earls
Date: December 20, 2001

Sanitary Landfill

Landfill Capacity: 6,337,349 Mg (from Amended Design Capacity Report)
1999 Refuse Acceptance Rate: 250,204 tons/yr (Provided by Rumpke)
2000 Refuse Acceptance Rate: 236,833 tons/yr (Provided by Rumpke)
Refuse In Place: 2,111,901 Mg (Based on refuse in place at end of 1998 from MSOP application, and actual waste acceptance rates from 1999 and 2000.)

Lo: 100.0 m^3/Mg
k: 0.04 /yr
NMOC: 595.0 ppmv
Methane: 50% by volume

Pollutant	Potential Uncontrolled Emissions*	
	(Mg/yr)	(Tons/yr)
Methane	13880.00	15295.76
NMOC	88.76	97.81
OC (Methane + NMOC)	13968.76	15393.57
Non-VOC Pollutants		
1,1,1-Trichloroethane	0.11	0.12
Acetone	0.70	0.77
Dichloromethane	2.10	2.31
Ethane	46.27	50.99
Methane	13880.00	15295.76
Perchloroethylene	1.07	1.18
Dichlorodifluoromethane	3.29	3.63
Chlorodifluoromethane	0.19	0.21
Fluorotrichloromethane	0.18	0.20
Total Non-VOC	**13933.91**	**15355.17**
Total VOC	**34.85**	**38.40**

Pollutant	Potential Controlled Emissions**	
	(Mg/yr)	(Tons/yr)
Methane	6551.00	7219.20
NMOC	41.89	46.16
OC (Methane + NMOC)	6592.89	7265.36
Non-VOC Pollutants		
1,1,1-Trichloroethane	0.05	0.06
Acetone	0.33	0.36
Dichloromethane	0.99	1.09
Ethane	21.84	24.07
Methane	6551.00	7219.20
Perchloroethylene	0.51	0.56
Dichlorodifluoromethane	1.55	1.71
Chlorodifluoromethane	0.09	0.10
Fluorotrichloromethane	0.09	0.10
Total Non-VOC	**6576.45**	**7247.25**
Total VOC	**16.44**	**18.12**

Methodology:

* Maximum values based on USEPA Landfill Gas Emissions Model (version 2.01), AP-42 defaults for Lo, k, NMOC concentration for landfill sites with no co-disposal of industrial waste, and individual compound concentrations.
** Controlled emissions represent the worst case emissions between the years 2001 and 2006. Emissions are controlled by a flare after 2002, therefore, worst case emissions after control represent uncontrolled emissions from 2002.

Appendix A: Emission Calculations
HAP Emissions

Company Name: Rumpke of Indiana, LLC
Address City IN Zip: County Road 500, Worthington, Indiana 46176
Permit Revision No.: 055-15317
Plt ID: 055-00036
Reviewer: Trish Earls
Date: December 20, 2001

Sanitary Landfill

Landfill Capacity: 6,337,349 Mg (from Amended Design Capacity Report)
1999 Refuse Acceptance Rate: 250,204 tons/yr (Provided by Rumpke)
2000 Refuse Acceptance Rate: 236,833 tons/yr (Provided by Rumpke)
Refuse In Place: 2,111,901 Mg (Based on refuse in place at end of 1998 from MSOP application, and actual waste acceptance rates from 1999 and 2000.)

Lo: 100.0 m^3/Mg
k: 0.04 /yr
NMOC: 595.0 ppmv
Methane: 50% by volume

Pollutant	Potential Emissions*	
	(Mg/yr)	(Tons/yr)
1,1,1-Trichloroethane	0.05	0.06
1,1,2,2-Tetrachloroethane	0.15	0.17
1,1,2-Trichloroethane	0.01	0.01
1,1-Dichloroethane	0.19	0.21
1,1-Dichloroethene	0.02	0.02
1,2-Dichloroethane	0.03	0.03
1,2-Dichloropropane	0.02	0.02
Acrylonitrile	0.27	0.30
Benzene	0.12	0.13
Carbon Disulfide	0.04	0.04
Carbon Tetrachloride	5.0E-04	5.5E-04
Carbonyl Sulfide	0.02	0.02
Chlorobenzene	0.02	0.02
Chloroethane	0.07	0.08
Chloroform	2.9E-03	3.2E-03
Chloromethane	0.05	0.06
Dichlorobenzene	0.03	0.03
Dichloromethane	0.99	1.09
Ethylbenzene	0.40	0.44
Ethylene Dibromide	1.5E-04	1.7E-04
Hexane	0.46	0.51
Mercury	4.8E-05	0.00
Methyl Ethyl Ketone	0.42	0.46
Methyl Isobutyl Ketone	0.15	0.17
Perchloroethylene	0.51	0.56
Toluene	2.96	3.26
Trichloroethene	0.30	0.33
Vinyl Chloride	0.37	0.41
Xylene	1.05	1.16
Total HAP	**8.70**	**9.59**

Methodology:

* Maximum values based on USEPA Landfill Gas Emissions Model (version 2.01), AP-42 defaults for Lo, k, NMOC concentration for landfill sites with no co-disposal of industrial waste, and individual compound concentrations. Potential emissions represent potential emission rates from 2002. Beginning in 2003, HAPs will be controlled by a flare resulting in less HAP emissions.

Appendix A: Emission Calculations
Particulate Matter Emissions

Company Name: Rumpke of Indiana, LLC
Address City IN Zip: County Road 500, Worthington, Indiana 46176
Permit Revision No.: 055-15317
Plt ID: 055-00036
Reviewer: Trish Earls
Date: December 20, 2001

Note: The following emission calculations represent the maximum potential uncontrolled PM and PM10 emissions based on a maximum refuse acceptance rate of 1,000,000 tons per year.

Solid Waste Dumping Operations

The following calculations determine the amount of emissions created by solid waste dumping, based on 8,760 hours of use and AP-42, Section 13.2.4, Equation 1. The emission factor for calculating PM emissions is calculated as follows:

PM-10 Emissions:

E = k*(0.0032)*(((U/5)^1.3)/((M/2)^1.4))
= 1.56E-04 lb PM-10/ton
3.29E-04 lb PM/ton

where k =	0.35	(particle size multiplier for <10um)
	0.74	(particle size multiplier for <30um)
U =	9.6	mph mean wind speed
M =	15.0	average material moisture content (%)

Max. Refuse Acceptance: 1,000,000 ton/yr * Ef (lb/ton of material) = (ton/yr)
2,000 lb/ton

Total PM 10 Emissions: **0.08 tons/yr**
Total PM Emissions: **0.16 tons/yr**

Unpaved Roadways

I. Public Hauler

52,560 trip/yr x
0.07 mile/trip x
2 (round trip) = 7576 miles per year

Ef = k*[(s/12)^a]*[(W/3)^b]/[(M/0.2)^c]*[(365-p)/365]*(S/15)
= 0.60 lb PM-10/mile
= 2.21 lb PM/mile

where k =	2.6	(particle size multiplier for PM-10)	(k=10 for PM-30 or TSP)
s =	6.4	mean % silt content of unpaved roads	
a =	0.8	Constant for PM-10 (a = 0.8 for PM-30 or TSP)	
b =	0.4	Constant for PM-10 (b = 0.5 for PM-30 or TSP)	
c =	0.3	Constant for PM-10 (c = 0.4 for PM-30 or TSP)	
W =	2	tons average vehicle weight	
M =	0.2	surface material moisture content, % (default is 0.2 for dry conditions)	
S =	10.0	mph speed limit	
p =	120.0	number of days with at least 0.01 in. of precipitation per year	

PM-10: 0.60 lb/mi x 7576 mi/yr = / 2000 lb/ton = **2.27 tons/yr**

PM: 2.21 lb/mi x 7576 mi/yr = / 2000 lb/ton = **8.37 tons/yr**

II. Residential Trucks

8,760 trip/yr x
0.59 mile/trip x
2 (round trip) = 10,259 miles per year

Ef = k*[(s/12)^a]*[(W/3)^b]/[(M/0.2)^c]*[(365-p)/365]*(S/15)
= 1.67 lb PM-10/mile
= 7.97 lb PM/mile

where k =	2.6	(particle size multiplier for PM-10)	(k=10 for PM-30 or TSP)
s =	6.4	mean % silt content of unpaved roads	
a =	0.8	Constant for PM-10 (a = 0.8 for PM-30 or TSP)	
b =	0.4	Constant for PM-10 (b = 0.5 for PM-30 or TSP)	
c =	0.3	Constant for PM-10 (c = 0.4 for PM-30 or TSP)	
W =	26	tons average vehicle weight	
M =	0.2	surface material moisture content, % (default is 0.2 for dry conditions)	
S =	10.0	mph speed limit	
p =	120.0	number of days with at least 0.01 in. of precipitation per year	

PM-10: 1.67 lb/mi x 10259 mi/yr = / 2000 lb/ton = **8.56 tons/yr**

PM: 7.97 lb/mi x 10259 mi/yr = / 2000 lb/ton = **40.87 tons/yr**

Appendix A: Emission Calculations
Particulate Matter Emissions (cont'd)

Unpaved Roadways (cont'd)

III. Commercial Trucks

26,280	trip/yr x	
0.52	mile/trip x	
2	(round trip) =	27357 miles per year

Ef = k*[(s/12)^a]*[(W/3)^b]/[(M/0.2)^c]*[(365-p)/365]*(S/15)
= 1.67 lb PM-10/mile
= 7.97 lb PM/mile

where k =	2.6	(particle size multiplier for PM-10)	(k=10 for PM-30 or TSP)
s =	6.4	mean % silt content of unpaved roads	
a =	0.8	Constant for PM-10 (a = 0.8 for PM-30 or TSP)	
b =	0.4	Constant for PM-10 (b = 0.5 for PM-30 or TSP)	
c =	0.3	Constant for PM-10 (c = 0.4 for PM-30 or TSP)	
W =	26	tons average vehicle weight	
M =	0.2	surface material moisture content, % (default is 0.2 for dry conditions)	
S =	10.0	mph speed limit	
p =	120.0	number of days with at least 0.01 in. of precipitation per year	

PM-10: 1.67 lb/mi x 27357 mi/yr = / 2000 lb/ton = **22.83 tons/yr**

PM: 7.97 lb/mi x 27357 mi/yr = / 2000 lb/ton = **108.98 tons/yr**

IV. Tractor Trailers/Transfer Trailers

35,040	trip/yr x	
0.65	mile/trip x	
2	(round trip) =	45,355 miles per year

Ef = k*[(s/12)^a]*[(W/3)^b]/[(M/0.2)^c]*[(365-p)/365]*(S/15)
= 1.67 lb PM-10/mile
= 7.97 lb PM/mile

where k =	2.6	(particle size multiplier for PM-10)	(k=10 for PM-30 or TSP)
s =	6.4	mean % silt content of unpaved roads	
a =	0.8	Constant for PM-10 (a = 0.8 for PM-30 or TSP)	
b =	0.4	Constant for PM-10 (b = 0.5 for PM-30 or TSP)	
c =	0.3	Constant for PM-10 (c = 0.4 for PM-30 or TSP)	
W =	26	tons average vehicle weight	
M =	0.2	surface material moisture content, % (default is 0.2 for dry conditions)	
S =	10.0	mph speed limit	
p =	120.0	number of days with at least 0.01 in. of precipitation per year	

PM-10: 1.67 lb/mi x 45355 mi/yr = / 2000 lb/ton = **37.85 tons/yr**

PM: 7.97 lb/mi x 45355 mi/yr = / 2000 lb/ton = **180.68 tons/yr**

V. Leachate Trucks

8,760	trip/yr x	
0.04	mile/trip x	
2	(round trip) =	636 miles per year

Ef = k*[(s/12)^a]*[(W/3)^b]/[(M/0.2)^c]*[(365-p)/365]*(S/15)
= 1.67 lb PM-10/mile
= 7.97 lb PM/mile

where k =	2.6	(particle size multiplier for PM-10)	(k=10 for PM-30 or TSP)
s =	6.4	mean % silt content of unpaved roads	
a =	0.8	Constant for PM-10 (a = 0.8 for PM-30 or TSP)	
b =	0.4	Constant for PM-10 (b = 0.5 for PM-30 or TSP)	
c =	0.3	Constant for PM-10 (c = 0.4 for PM-30 or TSP)	
W =	26	tons average vehicle weight	
M =	0.2	surface material moisture content, % (default is 0.2 for dry conditions)	
S =	10.0	mph speed limit	
p =	120.0	number of days with at least 0.01 in. of precipitation per year	

PM-10: 1.67 lb/mi x 636 mi/yr = / 2000 lb/ton = **0.53 tons/yr**

PM: 7.97 lb/mi x 636 mi/yr = / 2000 lb/ton = **2.53 tons/yr**

Appendix A: Emission Calculations
Particulate Matter Emissions (cont'd)

Unpaved Roadways (cont'd)

VI. Liquid Waste Tankers

8,760	trip/yr x	
0.08	mile/trip x	
2	(round trip) =	1,439 miles per year

Ef =	k*[(s/12)^a]*[(W/3)^b]/[(M/0.2)^c]*[(365-p)/365]*(S/15)		
=	1.67	lb PM-10/mile	
=	7.97	lb PM/mile	
where k =	2.6	(particle size multiplier for PM-10)	(k=10 for PM-30 or TSP)
s =	6.4	mean % silt content of unpaved roads	
a =	0.8	Constant for PM-10 (a = 0.8 for PM-30 or TSP)	
b =	0.4	Constant for PM-10 (b = 0.5 for PM-30 or TSP)	
c =	0.3	Constant for PM-10 (c = 0.4 for PM-30 or TSP)	
W =	26	tons average vehicle weight	
M =	0.2	surface material moisture content, % (default is 0.2 for dry conditions)	
S =	10.0	mph speed limit	
p =	120.0	number of days with at least 0.01 in. of precipitation per year	

PM-10: 1.67 lb/mi x 1,439 mi/yr = / 2000 lb/ton = **1.20 tons/yr**

PM: 7.97 lb/mi x 1,439 mi/yr = / 2000 lb/ton = **5.73 tons/yr**

VII. Mixing Agent Trucks

35,040	trip/yr x	
0.19	mile/trip x	
2	(round trip) =	13,612 miles per year

Ef =	k*[(s/12)^a]*[(W/3)^b]/[(M/0.2)^c]*[(365-p)/365]*(S/15)		
=	1.67	lb PM-10/mile	
=	7.97	lb PM/mile	
where k =	2.6	(particle size multiplier for PM-10)	(k=10 for PM-30 or TSP)
s =	6.4	mean % silt content of unpaved roads	
a =	0.8	Constant for PM-10 (a = 0.8 for PM-30 or TSP)	
b =	0.4	Constant for PM-10 (b = 0.5 for PM-30 or TSP)	
c =	0.3	Constant for PM-10 (c = 0.4 for PM-30 or TSP)	
W =	26	tons average vehicle weight	
M =	0.2	surface material moisture content, % (default is 0.2 for dry conditions)	
S =	10.0	mph speed limit	
p =	120.0	number of days with at least 0.01 in. of precipitation per year	

PM-10: 1.67 lb/mi x 13,612 mi/yr = / 2000 lb/ton = **11.36 tons/yr**

PM: 7.97 lb/mi x 13,612 mi/yr = / 2000 lb/ton = **54.22 tons/yr**

VIII. Front-End Loaders

280,320	trip/yr x	
0.003	mile/trip x	
2	(round trip) =	1,861 miles per year

Ef =	k*[(s/12)^a]*[(W/3)^b]/[(M/0.2)^c]*[(365-p)/365]*(S/15)		
=	0.60	lb PM-10/mile	
=	2.21	lb PM/mile	
where k =	2.6	(particle size multiplier for PM-10)	(k=10 for PM-30 or TSP)
s =	6.4	mean % silt content of unpaved roads	
a =	0.8	Constant for PM-10 (a = 0.8 for PM-30 or TSP)	
b =	0.4	Constant for PM-10 (b = 0.5 for PM-30 or TSP)	
c =	0.3	Constant for PM-10 (c = 0.4 for PM-30 or TSP)	
W =	2	tons average vehicle weight	
M =	0.2	surface material moisture content, % (default is 0.2 for dry conditions)	
S =	10.0	mph speed limit	
p =	120.0	number of days with at least 0.01 in. of precipitation per year	

PM-10: 0.60 lb/mi x 1,861 mi/yr = / 2000 lb/ton = **0.56 tons/yr**

PM: 2.21 lb/mi x 1,861 mi/yr = / 2000 lb/ton = **2.06 tons/yr**

Total Potential Emissions from Unpaved Roadways: **PM-10:** **85.16 tons/yr**

PM: **403.44 tons/yr**

Total Controlled Emissions from Unpaved Roadways: **PM-10:** **42.58 tons/yr**

PM: **201.72 tons/yr**

Note: Controlled Unpaved Roadway emissions include a 50% PM control efficiency from watering of roadways.

Appendix A: Emission Calculations
Particulate Matter Emissions (cont'd)

Solidification Process Mixing Agent Storage Piles

The following calculations determine the amount of emissions created by wind erosion of storage stockpiles, based on 8,760 hours of use and USEPA's AP-42 (Pre 1983 Edition), Section 11.2.3.

Material	Silt Content (wt %)	Pile Size (acres)	PM Emissions tons/yr	P M-10 Emissions tons/yr	Controlled PM Emissions tons/yr	PM-10 Emissions tons/yr
Fly Ash	90.0	2.85	110.62	55.31		
Total			**110.62**	**55.31**	**5.53**	**2.77**

Note: Although several different types of mixing agents are used, fly ash represents the worst case scenario for PM emissions from wind erosion.
PM-10 emissions are assumed to be 50% of PM emissions.
Controlled emissions are based on a 95% control efficiency for synthetic tarp assumed to be similar to enclosure control efficiency from RACM Document Table 2.1.2-8.

METHODOLOGY

Ef = 1.7*(s/1.5)*(365-p)/235*(f/15)
= 212.68 lb/acre/day
where s = 90 % silt
p = 120 days of rain greater than or equal to 0.01 inches
f = 30 % of wind greater than or equal to 12 mph

Mixing Agent Loading and Unloading

The following calculations determine the amount of emissions created by mixing agent loading and unloading, based on 8,760 hours of use and AP-42, Section 13.2.4, Equation 1. The emission factor for calculating PM emissions is calculated as follows:

PM-10 Emissions:

E = k*(0.0032)*(((U/5)^1.3)/((M/2)^1.4))
= 6.90E-03 lb PM-10/ton
1.46E-02 lb PM/ton
where k = 0.35 (particle size multiplier for <10um)
0.74 (particle size multiplier for <30um)
U = 9.6 mph mean wind speed
M = 1.0 minimum material moisture content (%)

Mixing Agent: 438,000 ton/yr * No. of material handling activities * Ef (lb/ton of material) = (ton/yr)
2,000 lb/ton

* No. of Mixing Agent Handling Activities: 3

* Mixing agent handling activities include storage pile load-in, storage pile load-out, and loading into roll-off box.

Total PM 10 Emissions: 4.53 tons/yr
Total PM Emissions: 9.59 tons/yr

Appendix A: Emission Calculations
Particulate Matter Emissions (cont'd)

Solidified Waste Loading and Unloading

The following calculations determine the amount of emissions created by solidified waste loading and unloading, based on 8,760 hours of use and AP-42, Section 13.2.4, Equation 1. The emission factor for calculating PM emissions is calculated as follows:

PM-10 Emissions:

E =	k*(0.0032)*(((U/5)^1.3)/((M/2)^1.4))	
=	4.98E-04	lb PM-10/ton
	1.05E-03	lb PM/ton
where k =	0.35	(particle size multiplier for <10um)
	0.74	(particle size multiplier for <30um)
U =	9.6	mph mean wind speed
M =	6.54	minimum material moisture content (%)

Solidified Waste: 569,400 ton/yr * No. of material handling activities * Ef (lb/ton of material) = (ton/yr)
2,000 lb/ton

* No. of Solidified Waste Handling Activities: 2

* Solidified waste handling activities include unloading from roll-off box by excavator and loading into dump truck.

Total PM 10 Emissions: 0.28 tons/yr
Total PM Emissions: 0.60 tons/yr

Appendix A: Emission Calculations
Methane Gas Flare Combustion

Company Name: Rumpke of Indiana, LLC
Address City IN Zip: County Road 500, Worthington, Indiana 46176
Permit Revision No.: 055-15317
Plt ID: 055-00036
Reviewer: Trish Earls
Date: December 20, 2001

Landfill Gas Collection Efficiency	85.00%		
Flare Control Efficiency	98.00%		
Landfill gas temperature (F)	77	(default temperature based on AP-42, p. 2.4-5)	
Total Methane Processed (cu.m/yr)	1.77E+07	(based on max. methane generated * collection efficiency)	
Total LFG inlet flow (acfm)	2375	=	2335 scfm
Heat content of methane (BTU/cu.ft)	1012		
Heat Input to Flare (MMBtu/hr)	72.21		

	Pollutant							
	PM	PM10	SO2	NOx*	VOC**	CO*	HCl***	HF***
Emission Factor in lb/MMBtu	0.00	0.00	see below	0.06	N/A	0.20	N/A	N/A
Emission Factor in lb/mmdscf methane	17.00	17.00		0.00	N/A	0.00	N/A	N/A
Potential Emission in lbs/hr	1.19	1.19	1.09	4.33	0.15	14.44	1.68	0.27
Potential Emission in tons/yr	5.22	5.22	4.79	18.98	0.65	63.26	7.38	1.19

Methodology:
[illegible]
for Rumpke.
** VOC emissions represent point emissions from landfill gas emissions table for year 2006.
***The emission rate selected for calculating HCl and HF emissions was the highest uncontrolled emission rate in years after installation of flare (i.e. 2006).

SO2 Emissions Calculation

Molecular Weight of SO2 (expressed as sulfur) (g)	32.06	
Default conc. of total reduced sulfur compounds as S (ppmv)	46.9	ref. AP-42, p. 2.4-8 (default value used since no site specific value is available)
Collected amount	1659.18	ref. AP-42, Section 2.4, Equation 3, p. 2.4-5.
Collected amount	2.39	ref. AP-42, Section 2.4, Equation 4, p. 2.4-5.
SO2 Emission Rate (tons/yr)	4.79	based on the ratio of molecular weight of SO2 to MW of S of 2.

Appendix A: Emission Calculations
VOC and HAP Emissions

Company Name: Rumpke of Indiana, LLC
Address City IN Zip: County Road 500, Worthington, Indiana 46176
Permit Revision No.: 055-15317
Plt ID: 055-00036
Reviewer: Trish Earls
Date: December 20, 2001

Solidification Process

Maximum Annual Throughput of Liquid Waste: 14,602,920 gal/yr = 1667 gal/hr
Limited Annual Throughput of Liquid Waste: 6,240,000 gal/yr = 1667 gal/hr

Chemical	Concentration (mg/l)*	Potential VOC Emissions***		Potential HAP Emissions		Limited VOC Emissions		Limited HAP Emissions	
		(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)	(lb/hr)	(tons/yr)
Arsenic**	5	N/A	N/A	4.90E-08	2.15E-07	N/A	N/A	4.90E-08	9.18E-08
Barium**	100	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzene	0.5	6.96E-03	3.05E-02	6.96E-03	3.05E-02	6.96E-03	1.30E-02	6.96E-03	1.30E-02
Cadmium**	1	N/A	N/A	9.81E-09	4.30E-08	N/A	N/A	9.81E-09	1.84E-08
Carbon Tetrachloride	0.5	6.96E-03	3.05E-02	6.96E-03	3.05E-02	6.96E-03	1.30E-02	6.96E-03	1.30E-02
Chlordane	0.03	4.17E-04	1.83E-03	4.17E-04	1.83E-03	4.17E-04	7.81E-04	4.17E-04	7.81E-04
Chlorobenzene	100	1.39	6.09	1.39	6.09	1.39	2.60	1.39	2.60
Chloroform	6	8.35E-02	0.37	8.35E-02	0.37	8.35E-02	0.16	8.35E-02	0.16
Chromium**	5	N/A	N/A	4.90E-08	2.15E-07	N/A	N/A	4.90E-08	9.18E-08
Cresol & Isomers	200	2.78	12.19	2.78	12.19	2.78	5.21	2.78	5.21
2,4-D**	10	N/A	N/A	9.81E-08	4.30E-07	N/A	N/A	9.81E-08	1.84E-07
1,4-Dichlorobenzene	7.5	0.10	0.46	0.10	0.46	0.10	0.20	0.10	0.20
1,2-Dichloroethane	0.5	6.96E-03	3.05E-02	6.96E-03	3.05E-02	6.96E-03	1.30E-02	6.96E-03	1.30E-02
1,1-Dichloroethylene	0.7	9.74E-03	4.27E-02	9.74E-03	4.27E-02	9.74E-03	1.82E-02	9.74E-03	1.82E-02
2,4-Dinitrotoluene**	0.13	N/A	N/A	1.28E-09	5.58E-09	N/A	N/A	1.28E-09	2.39E-09
Endrin**	0.02	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Heptachlor**	0.008	N/A	N/A	7.85E-11	3.44E-10	N/A	N/A	7.85E-11	1.47E-10
Hexachlorobenzene	0.13	1.81E-03	7.92E-03	1.81E-03	7.92E-03	1.81E-03	3.39E-03	1.81E-03	3.39E-03
Hexachlorobutadiene	0.5	6.96E-03	3.05E-02	6.96E-03	3.05E-02	6.96E-03	1.30E-02	6.96E-03	1.30E-02
Hexachloroethane	3	4.17E-02	0.18	4.17E-02	0.18	4.17E-02	7.81E-02	4.17E-02	7.81E-02
Lead**	5	N/A	N/A	4.90E-08	2.15E-07	N/A	N/A	4.90E-08	9.18E-08
Lindane**	0.4	N/A	N/A	3.92E-09	1.72E-08	N/A	N/A	3.92E-09	7.34E-09
Mercury**	0.2	N/A	N/A	1.96E-09	8.59E-09	N/A	N/A	1.96E-09	3.67E-09
Methoxychlor**	10	N/A	N/A	9.81E-08	4.30E-07	N/A	N/A	9.81E-08	1.84E-07
Methyl Ethyl Ketone	200	2.78	12.19	2.78	12.19	2.78	5.21	2.78	5.21
Nitrobenzene	2	2.78E-02	0.12	2.78E-02	0.12	2.78E-02	5.21E-02	2.78E-02	5.21E-02
Pentachlorophenol**	100	N/A	N/A	9.81E-07	4.30E-06	N/A	N/A	9.81E-07	1.84E-06
Pyridine	5	6.96E-02	0.30	N/A	N/A	6.96E-02	0.13	N/A	N/A
Selenium**	1	N/A	N/A	9.81E-09	4.30E-08	N/A	N/A	9.81E-09	1.84E-08
Silver**	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tetrachloroethylene	0.7	9.74E-03	4.27E-02	9.74E-03	4.27E-02	9.74E-03	1.82E-02	9.74E-03	1.82E-02
Toxaphene**	0.5	N/A	N/A	4.90E-09	2.15E-08	N/A	N/A	4.90E-09	9.18E-09
Trichloroethylene	0.5	6.96E-03	3.05E-02	6.96E-03	3.05E-02	6.96E-03	1.30E-02	6.96E-03	1.30E-02
2,4,5-Trichlorophenol**	400	N/A	N/A	3.92E-06	1.72E-05	N/A	N/A	3.92E-06	7.34E-06
2,4,6-Trichlorophenol**	2	N/A	N/A	1.96E-08	8.59E-08	N/A	N/A	1.96E-08	3.67E-08
2,4,5-TP (Silvex)**	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vinyl Choride	0.2	2.78E-03	1.22E-02	2.78E-03	1.22E-02	2.78E-03	5.21E-03	2.78E-03	5.21E-03
Maximum Emissions		**7.34**	**32.16**	**7.27**	**31.86**	**7.34**	**13.74**	**7.27**	**13.61**
Total VOC Concentration (mg/l)	**527.76**								

Methodology:

* Concentration of each chemical was set at the regulatory level for toxicity as outlined in 40 CFR 60.261.24. This was done in order to obtain the worst-case emissions, since the landfill could not accept any waste with concentrations exceeding these values.

** For chemicals that are solid at standard conditions, and thus not VOC, the emissions were based on the PM emission factor for material handling of the solidified waste. See page 8 of App. A for emission factor.

*** For chemicals which are VOC, emissions were calculated as follows:
VOC/HAP emissions (lb/hr) = Gal/hr of liquid waste * 3.785 liters/gal * Conc. (mg/l) * 2.205E-06 lbs/mg
Potential VOC/HAP emissions (tons/yr) = VOC/HAP emissions (lb/hr) * 8760 hrs/yr * 1/2000 lbs/ton
Limited VOC/HAP emissions (tons/yr) = Limited gal/yr of liquid waste * 3.785 liters/gal * Conc. (mg/l) * 2.205E-06 lbs/mg * 1/2000 lbs/ton